SONY®

DIGITAL VIDEO HYBRID RECORDER

DNW-A100/A100P

DNW-A50/A50P

DNW-A45/A45P

BETACAM SX

OPERATION MANUAL   English
1st Edition (Revised 3)
Serial No. 10001 and Higher

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1-1 Overview

The DNW-A100/A100P/A50/A50P/A45/A45P (also referred to simply as the unit in this manual) is a hybrid recorder, integrating a hard disk and VTR with editing functions, based on the Betacam SX format. The following table outlines the differences in the functions of the DNW-A100/A100P, DNW-A50/A50P, and DNW-A45/A45P.

Model	Hard disk (dual channel) Built-in: 2 units (1 pair); SCSI connection for external expansion units	High-speed transfer function (FEED button)	SDDI I/O connectors
DNW-A100/A100P	Data capacity: 9 GB/disk Continuous recording time: about 88 minutes (DNW-A100) or 92 minutes (DNW-A100P) per disk pair	Yes	Yes (but input is an option)
DNW-A50/A50P	Data capacity: 9 GB/disk Continuous recording time: about 88 minutes (DNW-A50) or 92 minutes (DNW-A50P) per disk pair	No	No
DNW-A45/A45P	Data capacity: 4 GB/disk Continuous recording time: about 41 minutes (DNW-A45) or 43 minutes (DNW-A45P) per disk pair	No	No

For detailed specifications, see "Specifications" in the Appendix.

There are some functional and operational differences between units with a version number of 2.00 or later and units with a version number before 2.00. When necessary, this manual will provide separate explanations for version 2.00 or later units and units before version 2.00.

Control panel differences

Units before version 2.00 have AUDIO INPUT/ MONITOR SELECT buttons on the upper control panel. On version 2.00 or later units, these buttons are the AUDIO INPUT/MIXING/MONITOR SELECT buttons *(see figure on page 2-3)*. Version 2.00 or later units also have a MIXING indicator to the left of the buttons. This indicator is not found on units before version 2.00.

The following are some of the features of the system.

Betacam SX format

The Betacam SX format was developed as a digital version of the Betacam SP format, and is a digital VTR format supporting nonlinear editing systems and server systems. Compared with analog Betacam, the Betacam SX format reduces the tape speed to approximately one-half. The drum rotates at 75 revolutions per second, recording two frames of video data and four channels of digital audio in ten diagonal tracks. The longitudinal control and time code tracks are the same as in the analog Betacam format.
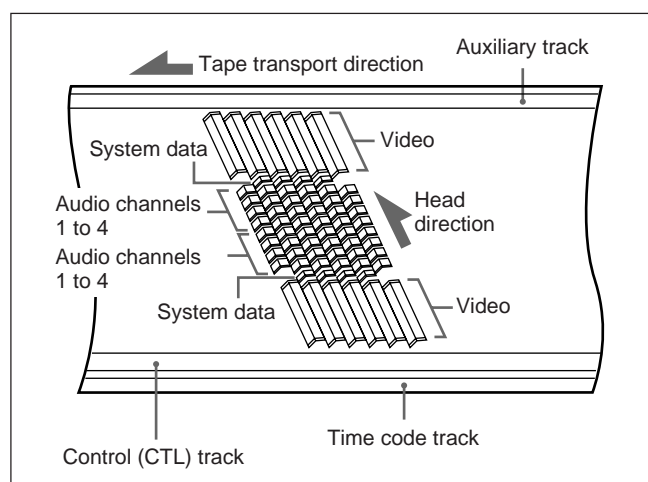
Head configuration

In addition to digital recording and playback heads for Betacam SX, the unit also has analog playback heads for Betacam SP. There are sixteen digital playback heads, allowing high-speed data transfer at four times normal speed (DNW-A100/A100P only), and CONFI playback (simultaneous playback) for checking recording.

Digital signal processing

This unit processes digital signals conforming to 4:2:2 component digital D-1 format.

High image quality, high audio quality, high reliability

Even with a low data rate, recording and playback with high image quality and high audio quality is achieved. The unit also has a powerful error-correcting system.

Data compression by interframe encoding

This is the first VTR to perform data compression by MPEG-2 interframe encoding conforming to 4:2:2 Profile @ Main level. The data rate is reduced by a factor of 10.

Playback compatibility with Betacam/ Betacam SP

This unit can play tapes recorded in Betacam/Betacam SP format. Simultaneously with this playback operation, you can copy the material to the hard disk for nonlinear editing. This makes for efficient use of existing material in Betacam/Betacam SP format.

Wide range of input and output signals

You can use the following wide range of input and output signals.

Signals		Standard or option
Analog video	Input	Optionally either of composite (BKDW-505 for DNW-A100/A50/A45 or BKDW-506 for DNW-A100P/A50P/A45P) or component (BKNW-104)
	Output	Fitted as standard (composite and component)
Analog audio (4 channels)	Input	Fitted as standard
	Output	
AES/EBU digital audio	Input	Available as option (BKNW-105) to replace the standard analog audio inputs and outputs
	Output	
SDI [a] video/audio	Input	Fitted as standard
	Output	
SDDI [b] video/audio (DNW-A100/A100P only)	Input	Option (BKNW-103)
	Output	Fitted as standard
Time code	Input	Fitted as standard
	Output	

a) Serial Digital Interface
b) Serial Digital Data Interface

Powerful editing functions

These include assemble editing using the built-in VTR, and nonlinear editing using the built-in hard disk. This unit can also be used as the player for two-unit editing. Further, by connecting an editor, you can carry out GUI-based editing.

High-speed data transfer (DNW-A100/ A100P only)

This unit can carry out the following high-speed data transfers:
• Copying from tape to hard disk at four times normal speed
• Transfer at four times normal speed to an audio/video server through the SDDI interface
• High-speed data transfer through the SDDI interface to an SNG (Satellite News Gathering) system Monitoring of video and audio is also possible during high-speed transfers.

Menu-based setup

Initial settings for the unit's operating condition, the interfaces with connected equipment, and so forth can be made by menu operations on the front panel of the unit.

Wide range of indications

In addition to the LED display which shows the operating status and current settings of this unit and connected equipment, a fluorescent display displays numerical values including time code, user bits, editing IN and OUT points, editing durations, error messages, setup menu information, hard disk recorded amounts and remaining space, and event information.

Selection of external/internal time code

You can record using either an external time code or the output of the built-in time code generator. You can also synchronize the built-in time code generator to an external time code.

Connection to external control devices

It is possible to connect a BVE-900/910/2000/9000/ 9000P/9100/9100P or other BVE-series editor, a control and monitoring computer, a BVR-50/50P remote controller for the built-in digital video processor, and so forth.

Economy

• You can use a variety of tapes, including low-priced tapes for UVW-series VTRs and tapes for Betacam SP or Betacam SX format. Using large cassettes, recording of 180 minutes or more is possible.
• The design needs minimal maintenance, and requires no daily maintenance or checks. The drum and other components have reduced maintenance costs.

Rack mounting

The unit can be mounted in an EIA standard 19-inch rack.

For details of rack mounting, refer to the Maintenance Manual Part 1.

1-2 Example System Configurations

The following conceptual diagrams show examples of use in an outside broadcast van or local station and within a broadcasting station.

• Operation in an outside broadcast van or local station

Betacam SX camcorder

Microphone

Portable editor

SNG [a)] system

Digital cassette

Analog cassette

Digital (SDDI/SDI)

Digital modulator

Digital demodulator

DNW-A100/A100P

Analog composite

Betacam SP camcorder

Analog composite

Analog audio

Video monitor

Audio monitor

a) SNG: Satellite News Gathering
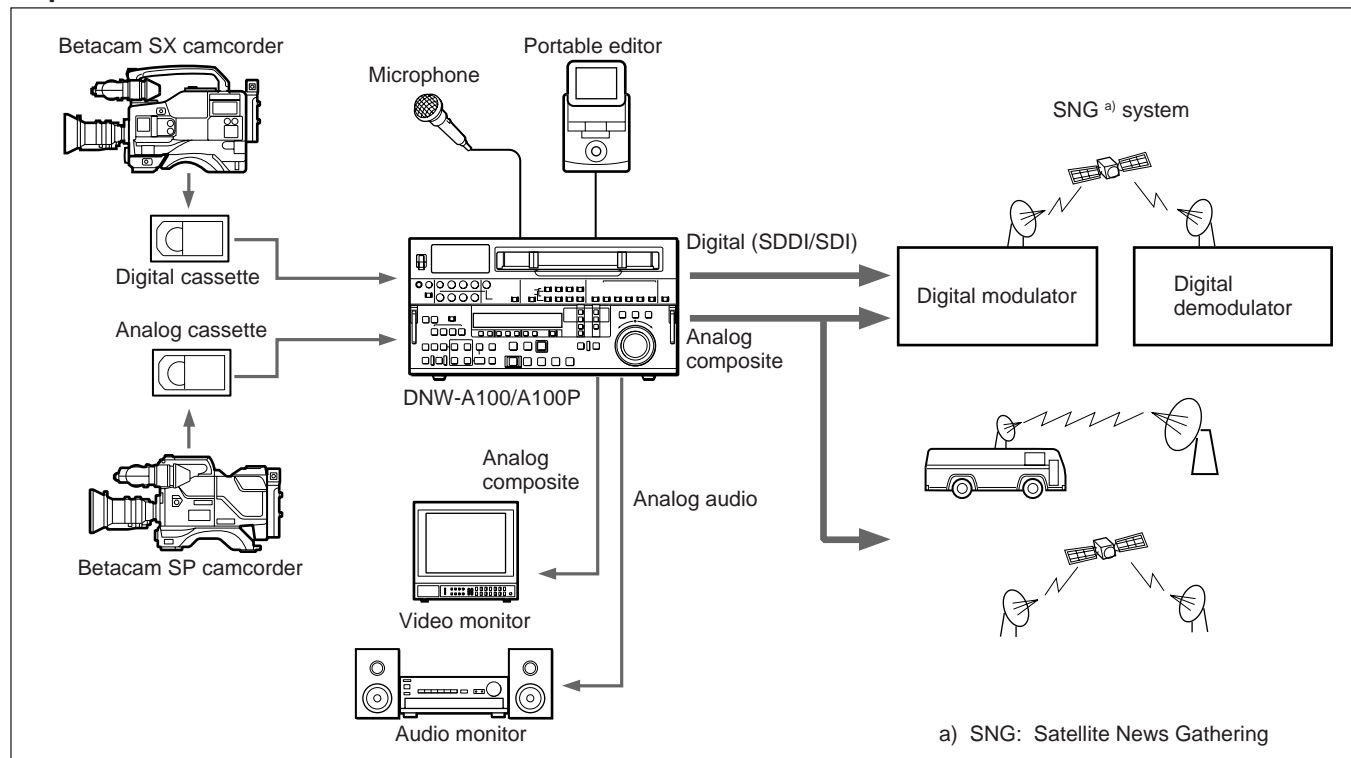
• Operation in a broadcasting station

On-line editor (for cut editing)

Microphone

BVE-series editor[a)]

Tape control

Digital/analog cassette

SDDI

SDI

Audio/video server system

SCSI

Additional hard disks

DNW-A100/A100P

Video monitor

Analog composite

Digital cassette

Analog composite/component

Analog audio

SDI

Audio monitor

VTR with SDI connectors or analog VTR

a) You cannot control this unit as a recorder using a BVE-series editor.

2-1 Control Panels

There are three front control panels, as follows:
• Upper control panel
• Subsidiary control panel
• Lower control panel

Upper control panel
(See page 2-2.)

Subsidiary control panel
(See page 2-19.)

Lower control panel
(See page 2-8.)
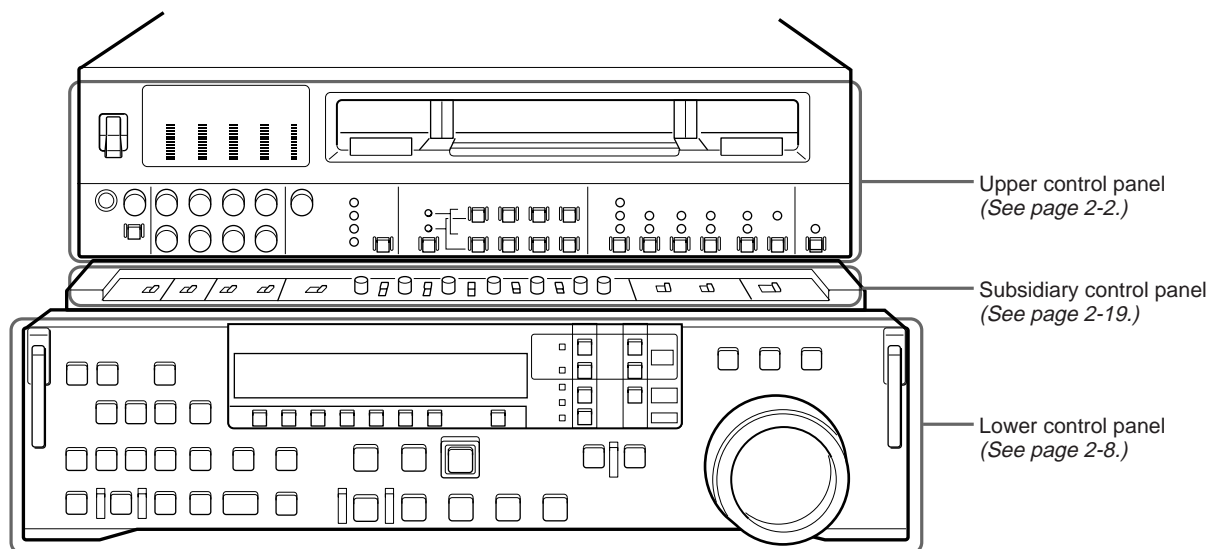
To reveal the subsidiary control panel, pull the lower control panel forward.

2-1 Control Panels

2-1-1 Upper Control Panel

1 POWER switch

2 Level meters

3 REC controls

4 VIDEO INPUT SELECT switch and indicators

5 Audio selection function selector switch and indicators

6 AUDIO INPUT/MONITOR SELECT buttons (Before Version 2.00)
AUDIO INPUT/MIXING/MONITOR SELECT buttons (Version 2.00 or later)

Cassette compartment

7 VIDEO control

8 PB controls

9 DISPLAY FULL/FINE switch

10 PHONES jack and control

11 Time code setting section

12 REMOTE/LOCAL switch and indicator

1 POWER switch

This powers the unit on and off. When the unit is powered on, the level meters **2** and the fluorescent display in the lower control panel light.
To power the unit off, press the side of the POWER switch marked "OFF".

Note

After carrying out operations on this unit using the hard disk, before powering the unit off be sure to press the EJECT button *(see page 2-17)* to close the files on the hard disk. Powering off the unit with files left open may result in a loss of system data from the hard disk.

2 Level meters

These show the audio levels of channels 1 to 4 (recording levels in recording mode or E-E mode [1] and playback level in playback mode) and the video levels of input composite video signals.
There are two modes for audio level indications: FULL and FINE, selected by the DISPLAY FULL/FINE switch **9**.

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1) E-E mode: Abbreviation of "Electric-to-Electric mode."
   In this mode, video and audio signals input to the VTR are output after passing through internal electric circuits, but not through magnetic conversion circuits such as heads and tapes. This can be used to check input signals and for adjusting input signal levels.

❸ REC (recording level) controls

These adjust individually the recording levels on channels 1 to 4.

To set the recording level, put the unit in E-E mode, pull out the control knobs and adjust the level while watching the audio level meters ❷.

When the control knobs are pushed in, the recording levels return to the preset levels (0 dBm reference level for an input of +4 dBm), and cannot be adjusted.

These controls do not function in the following cases.

• When SDDI video input is selected.

• When signals recorded on digital tape are being copied to the hard disk (including recording during editing operation).

For details of selecting the E-E mode, see the description of the REC button in the tape/disk transport control section (see page 2-16) and the PB. EE button in the monitor/menu/display setting section (see page 2-9).

❹ VIDEO INPUT SELECT switch and indicators

When an external device (EXT) is selected as the player by the device specification buttons *(see page 2-12)*, this switch selects the video input signal in the following sequence. (When the player is other than an external device, this switch and the indicators have no function.)

SDDI → SDI → COMPONENT or COMPOSITE

(SDDI input is an option for the DNW-A100/A100P. Only one of the component and composite video input options can be installed. It is not possible to use the input of the type which is not installed.)

SDDI (DNW-A100/A100P only): SDDI video signal input to the SDDI DIGITAL INPUT connector (In this case the SDDI audio signals are simultaneously selected.)

SDI: SDI video signal input to the SDI DIGITAL INPUT connectors

COMPONENT: Analog component video signal input to the COMPONENT VIDEO INPUT connectors.

COMPOSITE: Analog composite video signal input to the COMPOSITE VIDEO INPUT connectors.

The indicators light according to the selection. If there is a fault on the selected input (such as no input signal), the indicator flashes.

Note

When you have used the device specification buttons *(see page 2-12)* to set this switch to SDDI with EXT selected as the player and TAPE selected as the recorder, the REC INHIBIT indicator lights automatically and recording on tape is prohibited. Recording on the hard disk is not prohibited.

Using a video test signal

Holding down the VIDEO INPUT SELECT switch for at least three seconds lights all four of the indicators, and causes an internal signal generator to produce a video test signal.

To stop the production of the video test signal, press this switch and release within three seconds.

When the VIDEO INPUT SELECT switch is set to SDDI, you cannot use the video test signal.

It is only possible to use this function when extended menu item 710 is set to select a video test signal.

❺ Audio selection function selector switch and indicators

(Before Version 2.00)

Pressing this switch lights the INPUT indicator and MONITOR indicator alternately, and selects the function of the AUDIO INPUT/MONITOR SELECT buttons.

When the INPUT indicator is lit: You can use the AUDIO INPUT/MONITOR SELECT buttons to select the audio input signals.

When the MONITOR indicator is lit: You can use the AUDIO INPUT/MONITOR SELECT buttons to select the audio output channels.

(Version 2.00 or later)

Pressing this switch lights the INPUT indicator, MONITOR indicator and MIXING indicator cyclically, and selects the function of the AUDIO INPUT/MIXING/MONITOR SELECT buttons.
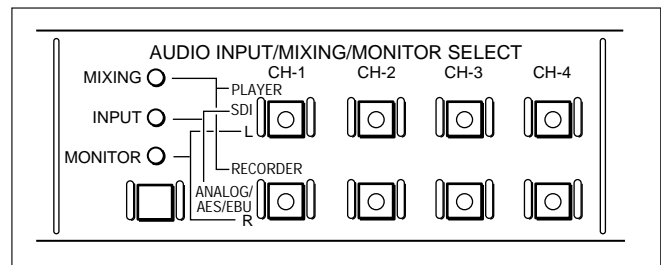
When the INPUT indicator is lit: You can use the AUDIO INPUT/MIXING/MONITOR SELECT buttons to select the audio input signals.

When the MONITOR indicator is lit: You can use the AUDIO INPUT/MIXING/MONITOR SELECT buttons to select the audio output channels.

When the MIXING indicator is lit: You can use the AUDIO INPUT/MIXING/MONITOR SELECT buttons to select the audio channels for recording from the player to the recorder selected with the device specification buttons *(see page 2-12)*. It is possible to mix the audio signals from two player audio channels and record the mixed signal to a recorder audio channel.

Using an audio test signal
(Before Version 2.00)
Holding down the audio selection function selector switch for at least 3 seconds lights both of the INPUT and MONITOR indicators, and causes an internal signal generator to produce an audio test signal.
To stop the production of the audio test signal, press this switch and release within 3 seconds.
(Version 2.00 or later)
Press the audio selection function selector switch several times until the INPUT indicator lights. Then press the CH-1 button in the SDI row or the ANALOG/AES/EBU row and keep it pressed for 3 seconds or longer. When you release the button, all of the AUDIO INPUT/MIXING/MONITOR SELECT buttons light and an internal signal generator produces an audio test signal.
During production of the audio test signal, the INPUT indicator remains lit even if you use the audio selection function selector switch to select MIX or MONITOR.
To stop the production of the audio test signal, press the audio selection function selector switch so that only the INPUT indicator is lit. Then press any of the AUDIO INPUT/MIXING/MONITOR SELECT buttons, releasing the button within 3 seconds.
When the VIDEO INPUT SELECT switch is set to SDDI, you cannot use the audio test signal.

It is only possible to use this function when extended menu item 808 is set to select an audio test signal.

❻ AUDIO INPUT/MONITOR SELECT buttons (Before Version 2.00)
AUDIO INPUT/MIXING/MONITOR SELECT buttons (Version 2.00 or later)
The function of these buttons depends on the setting of the audio selection function selector switch as follows.

When the INPUT indicator is lit
For each channel, press the button in the SDI row or the ANALOG/AES/EBU row.
The pressed button lights and the corresponding audio input signal is selected.
However, when the video input signals selected with the VIDEO INPUT SELECT switch are SDDI, the audio input signals for all channels are also set to SDDI.

Note

Only one of the ANALOG inputs and AES/EBU digital inputs can be installed. The ANALOG inputs are installed as standard.

When the MONITOR indicator is lit
Press the buttons in the L and R rows to select the audio signal channels (channels 1 to 4, identified as CH-1 to CH-4) output from the MONITOR OUTPUT L and MONITOR OUTPUT R connectors.
You can press two or more buttons simultaneously in each row, turning them on, to monitor an output produced by mixing the selected channels.

When the MIXING indicator is lit (Version 2.00 or later)
To select a player channel to record on a recorder channel, press one of the buttons (CH-1 to CH-4) in the PLAYER side row while pressing one of the buttons (CH-1 to CH-4) in the RECORDER side row.
For example, if you press the CH-2 button in the PLAYER side row while pressing the CH-1 button in the RECORDER side row, signals from player channel 2 are recorded in recorder channel 1.
If you press two PLAYER side buttons simultaneously, signals from the corresponding two channels are mixed and recorded in the recorder channel.

Note

Before selecting signals from two player channels for recording in one recorder channel, check to be sure that the emphasis settings (ON or OFF) of the two player channels are the same. Recording and playback of mixed signals cannot be carried out correctly if the emphasis settings are different.
You can check the settings in the channel display section of the level meters. EMPH is displayed for channels with the emphasis setting on.

The RECORDER side button that was pressed remains lit after you have finished making the settings. When you press the lit RECORDER side button, the PLAYER side buttons that were pressed when you made the settings light up again. This allows you to check the settings. To cancel the settings, press the corresponding button on the RECORDER side while pressing the button for the same channel on the PLAYER side.

Note

The channel copy and mixing settings described above are disabled during the following types of editing.
• Automatic editing in feed mode *(see page 5-11)* when TAPE has been selected as the player and MASTER or PROGRAM has been selected as the recorder.
• Automatic editing when MASTER or PROGRAM has been selected as the player and PROGRAM has been selected as the recorder.

Adjusting the recording level when the MIXING indicator is lit

Adjust by rotating the REC knob for the PLAYER side channel while viewing the level meter for the RECORDER side channel.
For example, when recording PLAYER side channel 1 signals in RECODER side channel 2, rotate the CH-1 REC knob while viewing the level meter for CH-2.

❼ VIDEO control
This adjusts the level of a composite video signal input to the COMPOSITE VIDEO INPUT connectors.
Pull out the control knob and adjust the level. When the control knob is pushed in, the automatic gain control (AGC) function comes into effect.

❽ PB (playback level) controls
These adjust individually the playback levels on channels 1 to 4.
During playback, pull out the control knobs and adjust the level while monitoring the audio level indication on the level meters ❷. When the control knobs are pushed in, the playback levels return to the preset levels, and cannot be adjusted.

❾ DISPLAY FULL/FINE switch
This switches the audio level meter ❷ display as follows:
  FULL: The display covers the range –60 dB to 0 dB or –40 dB to +20 dB as selected using extended menu item 806.
   In this mode the segment of the display corresponding to the current audio level and all lower segments light.
  FINE: The display is enlarged, with a step of 0.25 dB. A segment indicating the reference level lights.
   In this mode only the segment of the display corresponding to the current audio level lights. If the audio level exceeds the maximum display level, the top segment flashes, and if the audio level goes below the minimum display level, the bottom segment flashes.

❿ PHONES jack and control
Connect stereo headphones with an impedance of 8 ohms, to monitor the sound during recording, playback and editing.
The control knob adjusts the volume.
It is possible to make a setting so that the output volume from the MONITOR OUTPUT connectors is controlled simultaneously.

In order that the output volume from the MONITOR OUTPUT connectors can be controlled simultaneously, an internal board switch setting is required. For details, refer to the Maintenance Manual Part 1.

2-1 Control Panels

⓫ Time code setting section

TC switch and indicators

INT/EXT switch and indicators

PRESET/REGEN switch and indicators

TC   TC GENERATOR
                                              VITC
LTC ○
AUTO ○   INT ○   PRESET ○   FREE ○   DF ○   ON ○
                              RUN
VITC ○   EXT ○   REGEN ○   REC ○   NDF ○
                              RUN

FREE RUN/REC RUN switch and
indicators

DF/NDF switch and indicators

VITC switch and indicator
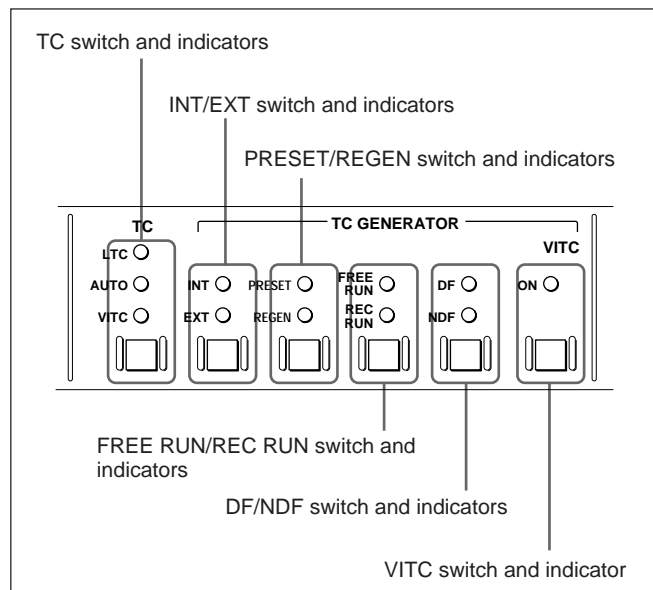
TC (time code) switch and indicators

This switch selects the time code displayed in the
lower control panel in the sequence: LTC [1] → AUTO
→ VITC [2]. The indicator corresponding to the
selection lights.
When AUTO is selected, the time code displayed is as
follows:
• For playback from tape
  VITC when the tape transport speed is up to half-
  speed, and LTC when it is more than half-speed.
• For playback from hard disk
  File time code *(see the section "Displayed time data
  value," page 4-7).*

INT/EXT (internal/external) switch and indicators

This switch selects the time code used:
  INT: The time code produced by the internal time
     code generator.
  EXT: The external time code selected as follows.
     • When the TC switch is set to LTC or AUTO
       The external time code input to the TIME CODE
       IN connector.
     • When the TC switch is set to VITC
       The VITC time code included in the input video
       signal.

PRESET/REGEN (preset/regenerated) switch and indicators

This switch makes the following selection for the
internal time code generator:
  PRESET: The initial value of the time code
     produced by the internal time code generator can
     be preset by a control panel operation or by
     remote control from a device connected to the
     REMOTE-IN(9P) connector.
  REGEN: The internal time code generator is
     synchronized to the playback time code read by
     the internal time code reader.
The indicator corresponding to the selection lights.

FREE RUN/REC RUN switch and indicators

This switch selects the time code run mode of the
internal time code generator.
  FREE RUN: Regardless of the operating mode of
     this unit, the time code value advances
     continuously while the power is on.
  REC RUN: The time code value advances only
     during recording. When this mode is selected, set
     the INT/EXT switch to INT, and the PRESET/
     REGEN switch to PRESET.
The indicator corresponding to the selection lights.

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1) LTC: abbreviation of Longitudinal Time code. This
   time code is recorded on a longitudinal track on the tape.
   Reading is unreliable at low speeds, and not possible at
   all during still playback.

2) VITC: abbreviation of Vertical Interval Time code.
   This is inserted in the vertical blanking interval and
   recorded on the video tracks. It can be read at low
   speeds and during still playback, but not during high-
   speed playback.

DF/NDF (drop-frame/non-drop-frame) switch and indicators

In a 525/60 system, this switch selects the mode of advancing the time code generator and CTL counter.

  DF: Drop-frame mode.[1]

  NDF: Non-drop-frame mode.[1]

The indicator corresponding to the selection lights.

Note

When the PRESET/REGEN switch is set to REGEN, since the time code generator is synchronized to the playback time code, this switch has no effect.

VITC switch and indicator

To record the time code produced by the internal time code generator as a VITC, press this switch, lighting the ON indicator.

When the ON indicator is off, internally generated time code is not recorded as VITC, but VITC present in the input video signal is recorded unchanged.

⓬ REMOTE/LOCAL switch and indicator

To control this unit from a device connected to the REMOTE-IN(9P) connector, press this switch, turning the 9P indicator on.

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1) Drop-frame/non-drop-frame mode: In the NTSC system, the actual frame rate is 29.97 frames per second. There is therefore a cumulative discrepancy between the actual frame rate and the 30 frames per second rate on which time code is based. In drop-frame mode, except once every 10 minutes, the first two frames are skipped at the beginning of each minute to keep the time code values in step with actual elapsed time. In non-drop-frame mode, the correction is not carried out, and there is a discrepancy of about 86 seconds per day between actual elapsed time and time code values.

2-1-2 Lower Control Panel

1 Editing mode setting section

2 Monitor/menu/display setting section

3 Device specification and display section

4 Editing control section   5 Tape/disk transport control section   6 Search control section

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1 Editing mode setting section

- ❶ ASSEMBLE/ALL button
- ❷ VIDEO button
- ❸ EDITING MODE button and indicators
- ❹ AUDIO CH-1 to CH-4 buttons
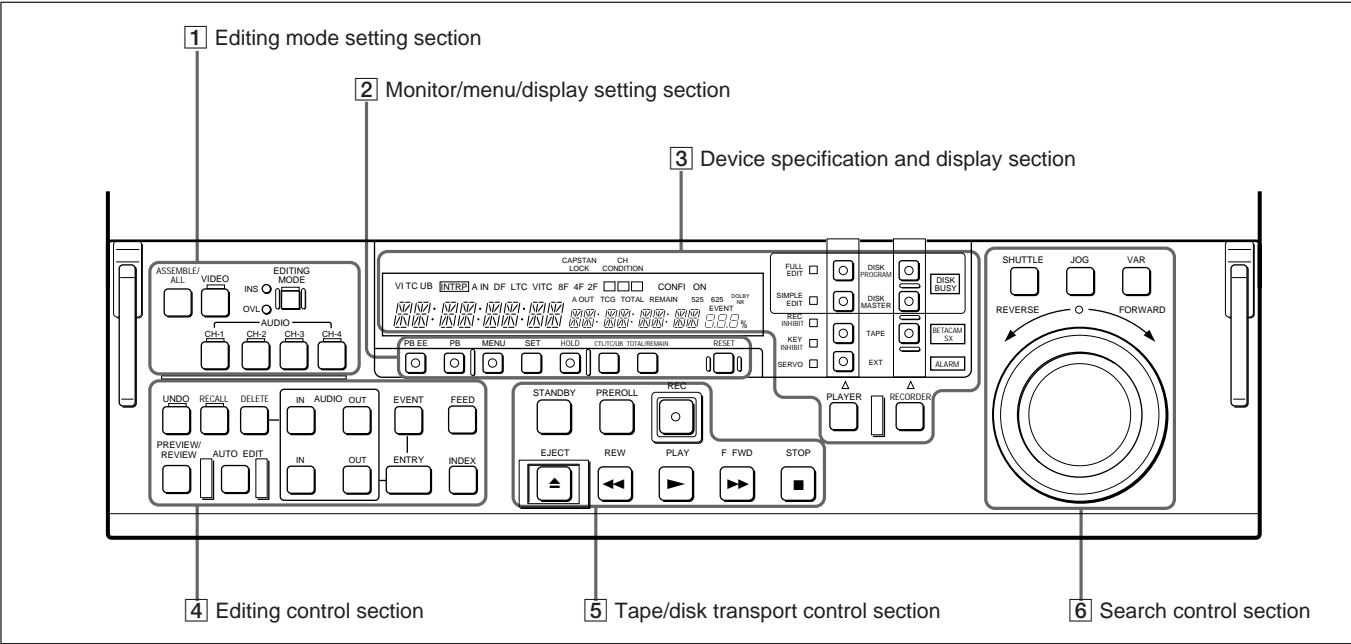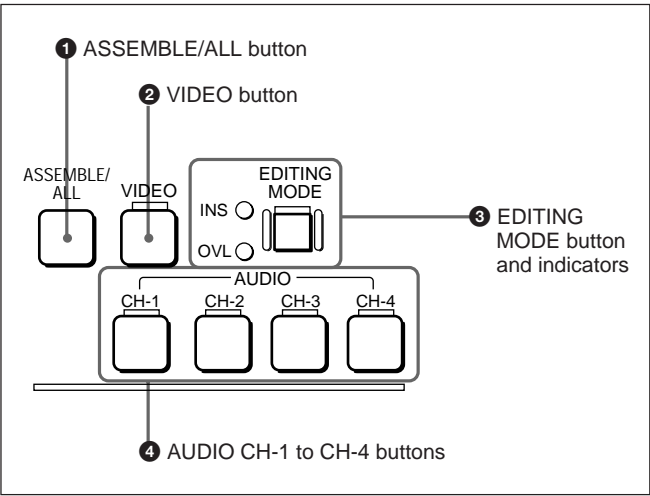
❶ ASSEMBLE/ALL button

Press this button, turning it on, in the following cases:
- To carry out assemble editing [1] using tape.
- To carry out all-channel insert editing [2] using the hard disk.

In both of these cases, all signals (video signals, audio

signals, time code signals, and so forth) are recorded together.

❷ VIDEO button

For insert editing on the hard disk, to select the video signal, press this button, turning it on.

❸ EDITING MODE button and indicators

This button switches the mode used for nonlinear editing insertion between insert mode (INS indicator lit) and overlay mode (OVL indicator lit).

For details of nonlinear editing, see Chapter5, "Editing Using the Built-in Hard Disk".

❹ AUDIO CH-1 to CH-4 (channel 1 to channel 4) buttons

For insert editing on the hard disk, to select audio channels 1 to 4, press these buttons, turning them on. You can select any number of the channels.

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1) Assemble editing: Editing in which new video/audio is added in sequence to the end of existing recorded video/audio.

2) Insert editing: Editing in which new video/audio is added into the middle of existing recorded video/audio.

2 Monitor/menu/display setting section
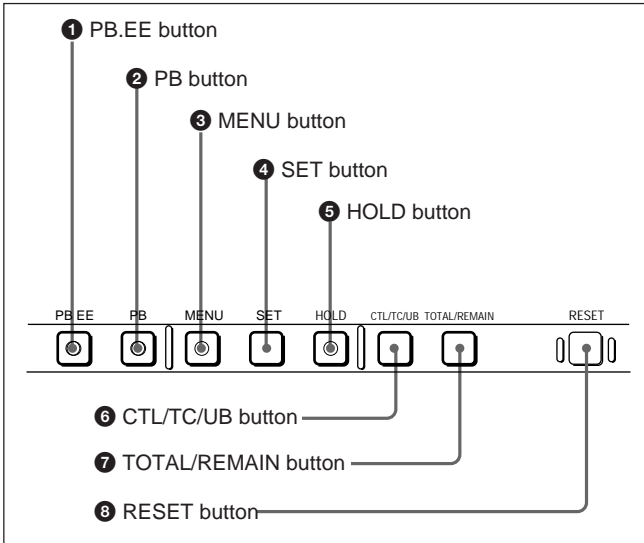
1 PB.EE (playback E-E) button

To select E-E mode input signals for the video/audio signals output during fast forward, rewind, still, and standby, press this button, turning it on.
Either one of this button and the PB button 2 is always lit.

2 PB (playback) button

To select playback signals for the video/audio signals output during fast forward, rewind, still, and standby, press this button, turning it on.
Either one of this button and the PB.EE button 1 is always lit.

3 MENU button

Use this button for setup menu operations.
Pressing this button, turning it on, displays setup menus in the fluorescent display of the device specification and display section 3 . Press the button once more to exit from the menu display.

For details of setup menu operations, see Chapter7, "Menu System".

4 SET button

Use this button for setting time code and user bit values and in setup menu operations.

For details of setup menu operations see Chapter7, "Menu System", and for details of setting time code and user bit values see Section 4-1-2 "Recording Time code and User Bit Values" (page 4-2).

5 HOLD button

To stop updating of the time code or user bit value in the fluorescent display (that is, to hold the display), press this button, turning it on. To set a time code or user bit value, first press this button to hold the value.

6 CTL/TC/UB button

This selects the value displayed in the fluorescent display in the following sequence: CTL, TC, UB. As the display changes, the corresponding indicators over the fluorescent display also show the status.

Time code display value selection and display contents

Display selection	Value displayed	Indicator status
CTL	Tape running time (hours, minutes, seconds, frames) computed from the CTL (control) signal recorded on the tape during playback, or a count of the CTL signal pulses during recording.	TC and UB indicators are both off.
TC	Playback time code read by the internal time code reader or time code during recording.[a]	The TC indicator lights and the UB indicator goes off.
UB	User bit value inserted in the playback time code or time code during recording.[a]	The UB indicator lights and the TC indicator goes off.

a) The selection of LTC or VITC is made by the TC switch. When VITC is selected, the VITC indicator over the TC switch lights.

7 TOTAL/REMAIN button

Press this button to switch between a TOTAL indication or REMAIN (remaining) indication on the fluorescent display. According to the selection, the TOTAL indicator or REMAIN indicator above the fluorescent display lights.
The TOTAL and REMAIN indications vary according to that on which operations are being carried out.

For details of the TOTAL and REMAIN indications, see the table "TOTAL/REMAIN indications" (page 2-10).

8 RESET button

To reset a CTL, time code (TC) or user bit (UB) value displayed in the fluorescent display, hold this button down.
Resetting the CTL value erases all edit points.

2-1 Control Panels

③ Device specification and display section

❶ Fluorescent display and indicators

❷ Device specification buttons and indicators

❸ Indicators

❹ PLAYER button and RECORDER button
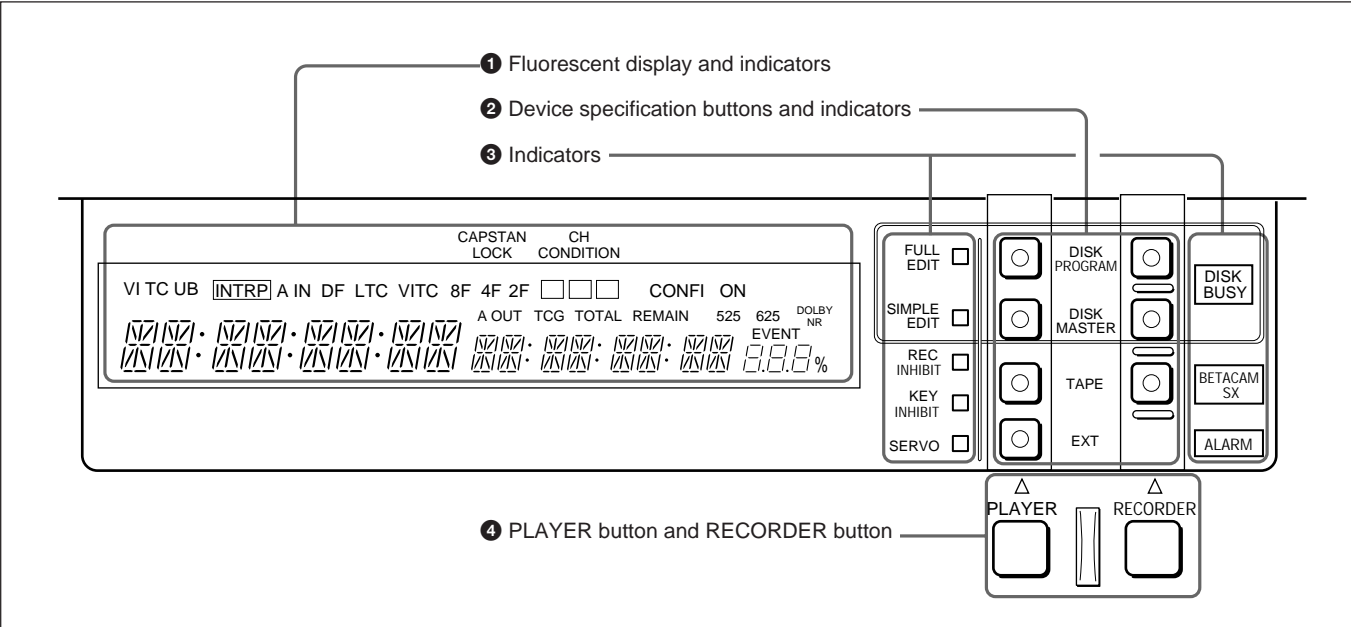
❶ **Fluorescent display and indicators**

This comprises a time data display area 1, a time data display area 2, and an event display area provided by the fluorescent display, and also a number of indicators.

Indicator area

Event display area

Time data display area 2

Time data display area 1
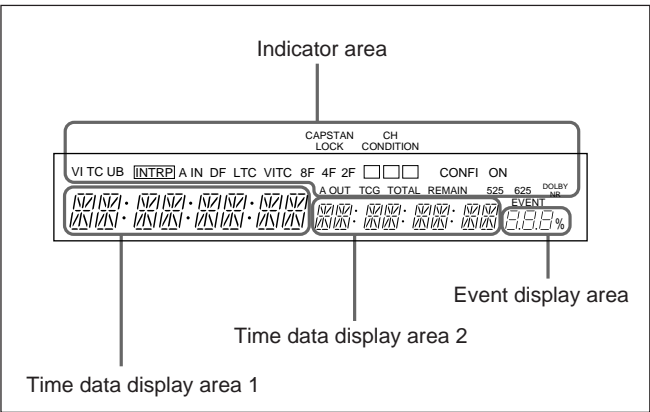
Time data display area 1

Normally this displays a CTL count, time code value, or user bit value according to the setting of the CTL/TC/UB button in the monitor/menu/display setting section ② and the setting of the TC switch in the upper control panel.

It is also used to display an IN point (or audio IN point), a duration, error messages, setup menus, and so forth.

For details of the selection of CTL count, time code value, or user bit value see the description of the CTL/TC/UB button (previous page).

Time data display area 2

This shows a TOTAL time indication or REMAIN (remaining) time indication according to the setting of the TOTAL/REMAIN button in the monitor/menu/display setting section ②. Depending on the display, the corresponding one of the TOTAL and REMAIN indicators immediately above lights.

TOTAL/REMAIN indications

Device subject to operations	TOTAL/ REMAIN selection	Display
DISK MASTER a)	TOTAL	Total number of frames recorded on disk.
	REMAIN	Number of frames of remaining unrecorded capacity of disk.
DISK PROGRAM b)	TOTAL	Total length (frames) of program created by editing.
	REMAIN	Remaining length (frames) of program during playback.
TAPE	TOTAL	Time value representing the total tape length.c)
	REMAIN	Time value representing the remaining tape length.c)

a) In the following description, "DISK MASTER" is also referred to simply as "MASTER".

b) In the following description, "DISK PROGRAM" is also referred to simply as "PROGRAM".

c) This is an approximate value calculated on the basis of the detected tape diameter. It is not precise to units of seconds.

In the following cases, "----------" appears as the TOTAL/REMAIN indication.
• When TAPE has been specified as the device subject to operations and either no cassette has been loaded or the loaded cassette has not started running, or when the remaining tape length has not yet been calculated because the tape started running only seconds before.
• When there is no edited program with PROGRAM specified as the device subject to operations

For details of the device subject to operations, see the item about the device specification buttons (page 2-12).

This area is also used to display an OUT point (or audio OUT point), a time code value produced by the time code generator, a duration, error messages, setup menus, and so forth.

Event display area
This normally displays the number of events registered during multi-event editing.
This is also used to display setup menu settings and feed speeds.

For details of multi-event editing, see Section 5-3, "Multi-Event Editing" (page 5-14).

Indicator area
This includes the following indicators.
• **A (audio) IN indicator:** When an IN point is displayed in time data display area 1, the IN indicator lights, and when an audio IN point is displayed, the A indicator lights in addition to the IN indicator.
• **TC (time code) indicator:** This lights when a time code is displayed in the time data display area 1.
• **UB (user bits) indicator:** This lights when a user bit value is displayed in the time data display area 1.
• **VI (VITC) indicator:** When a VITC time code value or VITC user bit value is displayed in the time data display area 1, this indicator lights together with the TC or UB indicator.

• **INTRP (interpolation) indicator:** This lights when a playback time code reading error is interpolated using the CTL signal.
• **DF (drop-frame) indicator:** This lights when a displayed time code value is in drop-frame mode.
• **LTC, VITC indicators:** Regardless of the display in the time data display area 1, these indicators light when the corresponding time code values are being read or recorded (during recording).
• **CAPSTAN LOCK 8F/4F/2F (8 fields/4 fields/2 fields) indicators:** The indicator lights corresponding to the mode selected by the CAPSTAN LOCK switch on the subsidiary control panel or in setup menu item 106.
• **CH (channel) CONDITION indicator:** A three-color indicator shows the state of the playback signal.
  Green: The state of the playback signal is good.
  Yellow: The playback signal is somewhat deteriorated, but playback is possible.
  Red: The playback signal is deteriorated. When this indicator remains on, head cleaning or an internal inspection is necessary.
• **CONFI (confidence) ON indicator:** This indicates the state of the VTR CONFI playback [1] function. When the CONFI playback function is enabled, the CONFI indicator lights, and when CONFI playback is actually being carried out the ON indicator also lights.
  CONFI playback settings are carried out using extended menu item 316.
• **A (audio) OUT indicator:** When an OUT point is displayed in time data display area 2, the OUT indicator lights, and when an audio OUT point is displayed, the A indicator lights in addition to the OUT indicator.
• **TCG (time code generator) indicator:** This lights when a time code generated by the internal time code generator is displayed in the time data display area 2.
• **TOTAL, REMAIN indicators:** When the "TOTAL" time is displayed in time data display area 2 the TOTAL indicator lights, and when the "REMAIN" time is displayed in time data display area 2 the REMAIN indicator lights.

....

1) CONFI playback: This refers to playback of the audio and video signals immediately after recording, using the confidence heads, the signal being output to all intents and purposes simultaneously with recording. This is used to check recording.

• **525, 625:** The indicator showing the number of scan lines for the television standard selected using basic menu item 013 lights (NTSC: 525 scan lines, field frequency 60 Hz; PAL: 625 scan lines, field frequency 50 Hz).

• **DOLBY NR indicator:** This lights when the Dolby noise-reduction[1] circuit is functioning.

• **EVENT indicator:** This lights when an event is displayed in the event display area.

❷ **Device specification buttons**
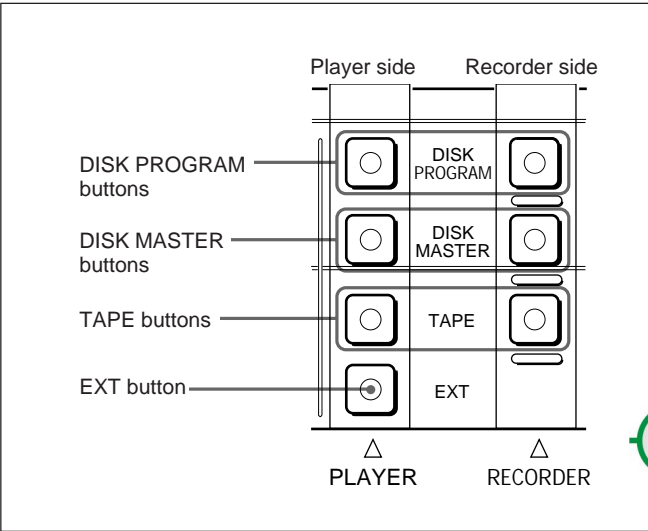
DISK PROGRAM buttons
When using the hard disk of this unit for nonlinear editing, specify the hard disk as player or recorder. According as you wish to specify the hard disk as player or recorder, hold down the PLAYER or RECORDER button and press the DISK PROGRAM button on the PLAYER side or RECORDER side, turning it on.
The device selected by pressing these buttons is also referred to simply as "PROGRAM".

DISK MASTER buttons
When using the hard disk of this unit for recording or playing back material before editing, specify the hard disk as player or recorder. According as you wish to specify the hard disk as player or recorder, hold down the PLAYER or RECORDER button and press the DISK MASTER button on the PLAYER side or RECORDER side, turning it on.
The device selected by pressing these buttons is also referred to simply as "MASTER".

TAPE buttons
To specify the VTR of this unit as player or recorder, hold down the PLAYER or RECORDER button and press the TAPE button on the PLAYER side or RECORDER side, turning it on.

EXT (external) button
To specify the device connected to the REMOTE-IN(9P) connector as player, hold down the PLAYER button and press this button, turning it on.
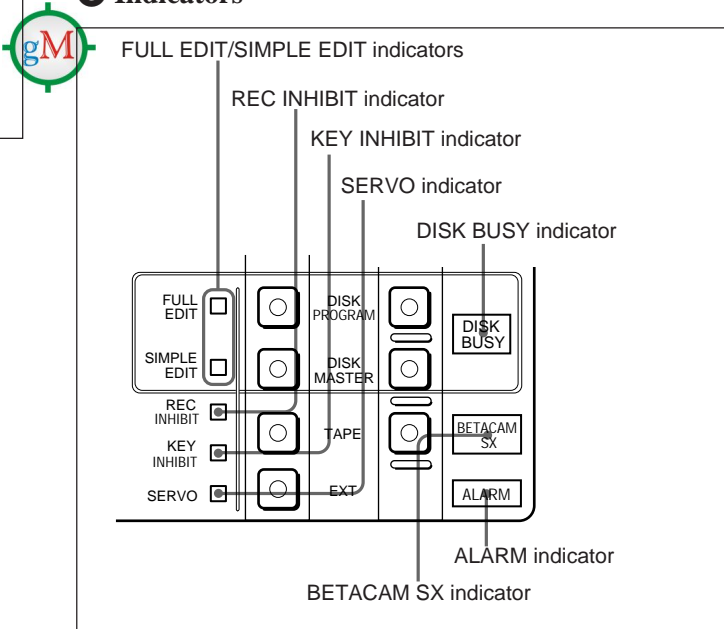
❸ **Indicators**

DISK BUSY indicator

This lights in the following cases:
• When the hard disk is being readied for operation immediately after power-on
• When the hard disk is being accessed.
When the hard disk is being warmed up, this indicator slowly flashes. In this case, wailt until the indicator goes off.

Note

While this indicator is lit, do not power off the unit. There is a possibility of data on the hard disk being damaged or destroyed.

ALARM indicator

This lights when a hardware error is detected on the unit, and goes off when the error is resolved.
When this indicator is lit, an error message appears in the fluorescent display. If you are using the COMPOSITE VIDEO OUTPUT 3 (SUPER) connector, then when the CHARACTER switch in the subsidiary control panel is set to ON, the error message also appears on the monitor screen.

BETACAM SX indicator

When recording in Betacam SX format or playing back a tape recorded in Betacam SX format, this indicator lights.

FULL EDIT/SIMPLE EDIT indicators

When full edit mode is specified as the editing mode for the disk, the FULL EDIT indicator lights, and when simple edit mode is specified as the editing mode for the disk, the SIMPLE EDIT indicator lights.
In the full edit mode, split editing for each of the video and audio channels is possible. In the simple edit mode, split editing is not possible.
When you are carrying out nonlinear editing with an editor connected to this unit, select full edit mode.
In the simple edit mode the maximum possible speed of data transfer to the built-in hard disk is four times normal speed, and in the full edit mode it is three times normal speed.
You can select simple edit mode or full edit mode using the disk file management menu.

For more information, see Section 7-4, "Disk File Management Menu" (page 7-25).

KEY INHIBIT indicator

This indicator lights when the KEY INHIBIT switch on the subsidiary control panel is set to ON.

REC (recording) INHIBIT indicator

This indicator is on or off according to the combination of the setting of the REC INHIBIT switch on the subsidiary control panel and the record inhibit plug on the cassette, as shown in the following table. When this indicator is on, recording on tape is prohibited.

REC INHIBIT indicator indications

REC INHIBIT switch position	State of the record inhibit plug on the cassette	REC INHIBIT indicator state
ON	Record inhibit/permit	Lit
OFF	Record inhibit	Lit [a]
	Record permit	Off

a) It is possible to make a setting (extended menu item 107) so that in this case the indicator flashes.

SERVO indicator

When the drum servo and capstan servo are locked [1], this indicator lights.

....

1) Servo lock: This refers to the synchronization of the phase of the drum rotation and the reference signal for the tape transport position, so that the video heads can trace the same pattern on the tape for playback or recording.

➍ PLAYER button and RECORDER button

When carrying out editing using a player and recorder, select each of the devices.

- To select the player: press the PLAYER button, turning it on. (PLAYER mode)
- To select the recorder: press the RECORDER button, turning it on. (RECORDER mode)
- To select both the recorder and the player: press the RECORDER button and the PLAYER button simultaneously, turning both of them on. ("PARA RUN" mode)

  In this case, extended menu item 201 must already have been set to PARA RUN ENABLE.

When an external device (EXT) is specified as the player and if it is not in the remote mode, neither of the buttons lights. In this case, operations apply to the device specified as the recorder.

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④ Editing control section

- ➊ UNDO button
- ➋ RECALL button
- ➌ DELETE button
- ➍ EVENT button
- ➎ FEED button
- ➏ INDEX button
- ➐ ENTRY button
- ➑ Edit point setting buttons
- ➒ AUTO EDIT button
- ➓ PREVIEW/REVIEW button
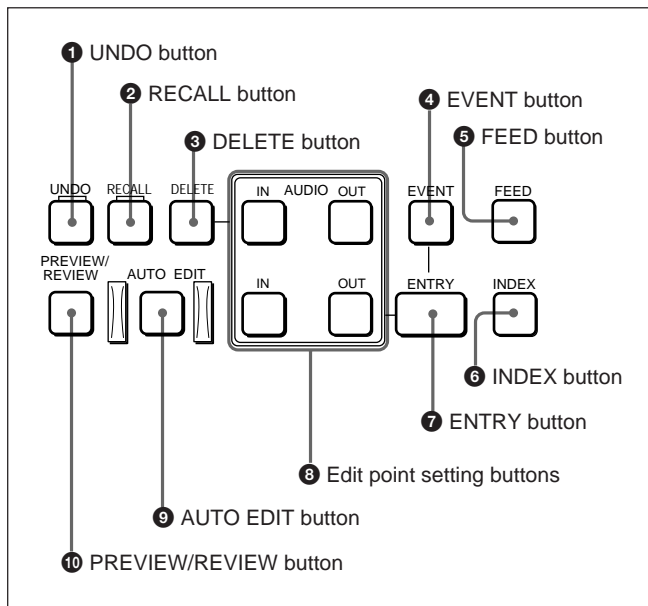
➊ UNDO button

Use this in nonlinear editing to undo the effect of the immediately previous automatic editing operation, and return to the previous state.

This button lights, and the AUTO EDIT button flashes. To return to the state before the immediately previous automatic editing operation, press the AUTO EDIT button. To cancel the undo operation, press this button again, turning it off.

➋ RECALL button

During playback of a program (DISK PROGRAM) or when playback is stopped, pressing this button while holding down the EVENT button recalls the IN and OUT points of the event being played back, causing the IN and OUT buttons to light. Use this button when you wish to modify the IN and OUT points.

➌ DELETE button

This deletes an edit point or event.

Hold down this button and press the IN, OUT, AUDIO IN, AUDIO OUT, or EVENT button according to the what you wish to delete. If the button (IN, OUT, AUDIO IN, or AUDIO OUT) which you pressed to make the deletion flashes, it is necessary to set the deleted edit point again.

➍ EVENT button

Use this button when you wish to save two or more player editing segments (each segment being between an edit IN point and OUT point) as an "event", and carry out automatic editing of all the events together (multi-event editing).

To save events, after setting each editing segment, hold down this button and press the ENTRY button. This is also used for other operations relating to events.

For details of operations relating to events, see Section 5-3, "Multi-Event Editing" (page 5-14) and Section 5-4, "Special Nonlinear Editing Operations" (page 5-17).

➎ FEED button (DNW-A100/A100P only)

Use this button when you wish to carry out dubbing from tape or the hard disk to an external device or high-speed automatic editing from tape to the hard disk at any speed from 0.1 to 4 times normal.

To play back in feed mode, hold down this button and press the PLAY button.

For details of operations in feed mode, see the section "Carrying out playback in feed mode" (page 4-10) and the section "Carrying out high-speed editing in feed mode" (page 5-11).

❻ INDEX button

Use this in the following cases:
• During playback of a Betacam SX format tape
  For cuing up to the point where index information
  (good shot marker or recording start marker) is
  recorded on a Betacam SX camcorder tape
• During playback from the hard disk
  For cuing up to a particular event

For details, see the items for the F FWD button and REW button (see page 2-17).

❼ ENTRY button

Use this for setting edit points, saving events and so
forth.
• To set a video IN point or OUT point: Hold down
  the IN button or OUT button, and press this button.
• To set an audio IN point or OUT point: Hold down
  the AUDIO IN button or AUDIO OUT button, and
  press this button.
• To save an event: Hold down the EVENT button,
  and press this button.

For details of operations relating to events, see Section 5-3, "Multi-Event Editing" (page 5-14) and Section 5-4, "Special Nonlinear Editing Operations" (page 5-17).

❽ Edit point setting buttons
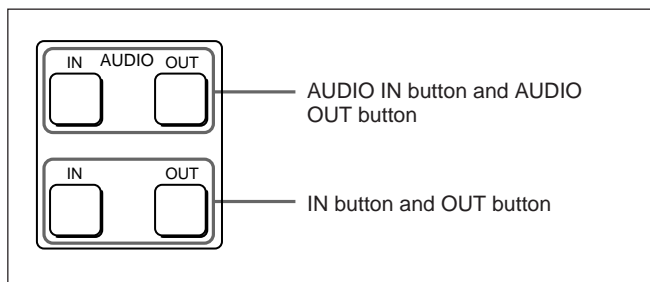
IN button and OUT button

To set a video IN point or OUT point, hold down the
IN button or OUT button, and press the ENTRY
button.
After you have made the setting, pressing the IN
button or OUT button displays the IN point or OUT
point set on the fluorescent display.

AUDIO IN button and AUDIO OUT button

In insert editing of the program, to set an audio IN
point or audio OUT point separate from the
corresponding video edit point, hold down the AUDIO
IN button or AUDIO OUT button, and press the
ENTRY button.
After you have made the setting, pressing the AUDIO
IN button or AUDIO OUT button displays the audio
IN point or audio OUT point set on the fluorescent
display.

❾ AUTO (automatic) EDIT button

After edit point setting, to carry out automatic editing
(recording), press this button, turning it on.
If the IN point is not set, the automatic editing is
carried out with the point where you pressed this
button as the IN point.
If you pressed the PREVIEW/REVIEW button to carry
out a preview, when the preview ends it flashes.

❿ PREVIEW/REVIEW button

After edit point setting, to preview the editing results
on the monitor before recording, press this button,
turning it on.
If the IN point is not set, the preview is carried out
with the point where you pressed this button as the IN
point.
During the preview it is lit, and when the preview ends
it flashes.
Use this button also to carry out a review of the editing
results after carrying out automatic editing.

5 Tape/disk transport control section

STANDBY button

PREROLL button

REC button

STANDBY   PREROLL   REC

EJECT   REW   PLAY   F FWD   STOP

STOP button

F FWD button

PLAY button

REW button

EJECT button
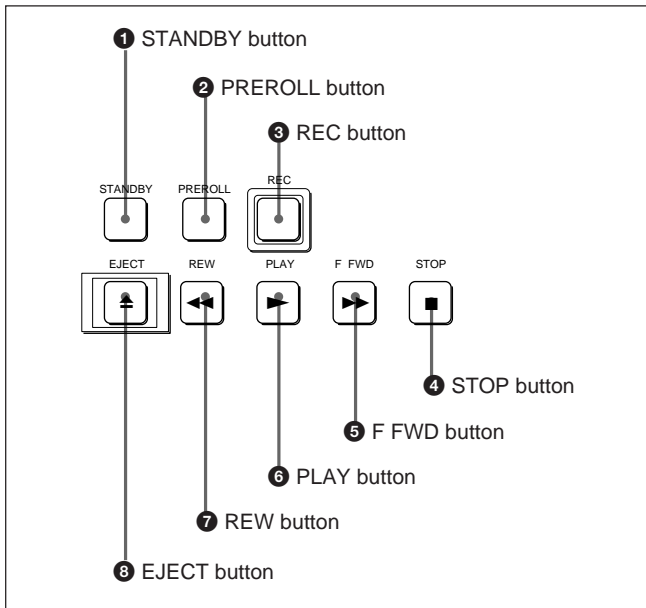
1 STANDBY button
Use this as follows, depending on the currently selected device.

For TAPE
When a cassette is inserted and this button is off, to put the VTR in standby mode, press the button, turning it on.
In standby mode, the drum is rotating and the tape is in contact with the drum. As a result, recording or playback can start immediately.
To end standby mode, press the STANDBY button, turning it off.
If 8 minutes (value can be varied using extended menu item 501) elapse in standby mode, the unit automatically switches out of standby mode to protect the tape.

For MASTER or PROGRAM
Pressing this button has no effect. When a file on the hard disk is open for recording or playback, this button lights.

2 PREROLL button
Press this button to cue up to the preroll point (before the IN point by the time set as the preroll time) on the tape or hard disk. You can change or select the preroll time and the state of the unit at the end of preroll ("stop mode" [1] or still playback mode) using basic menu item 001 or extended menu item 401.

Cuing up edit points
Hold down the IN, OUT, AUDIO IN, or AUDIO OUT button while pressing this button to cue up to the corresponding edit point.

3 REC (record) button
To start recording, press this button together with the PLAY button, turning it on.

Monitoring in E-E mode
When the unit is in stop mode, when you press this button it lights, and you can monitor the video and audio in E-E mode. To return to the original state, press the STOP button.
During playback, search, fast forward, or rewind, while this button is held down you can monitor the video and audio in E-E mode. In this case the button does not light.

4 STOP button
To stop recording or playback, press this button, turning it on.
When you stop playback, the unit switches either to still playback or to E-E mode according to setup menu settings, and the settings of the PB.EE button and PB button.

....

1) Stop mode: the state in which the device currently the subject of operation is stopped, and the STOP button is lit.

Fault display function

This flashes in the following cases related to reference signals:

• When the player is EXT.
 – When the OUT REF switch on the subsidiary control panel is set to INPUT VIDEO, and there is no input video signal.
 – When the OUT REF switch on the subsidiary control panel is set to REF, and there is no external reference signal input or the input external reference signal is not synchronized to the input video signal.
• When the player is other than EXT (when the player is an internal device)
 There is no external reference signal input, regardless of the setting of the OUT REF switch on the subsidiary control panel.

You can disable this function using extended menu item 105.

❺ F FWD (fast forward) button

To use this button, press it, turning it on. Its function depends on the currently selected device, as follows.

For TAPE

This fast forwards the tape.
While the INDEX button is lit, this cues up to index information detected during the fast forwarding operation.

For MASTER or PROGRAM

The effect in this case depends on whether the INDEX button is lit or off, as follows:
• **When the INDEX button is off:**
 Skips to the end of the last file or event.
• **When the INDEX button is lit:**
 Skips to the beginning of the next file or event.
 If the current file or event is the last one, skips to its end.

When events are being manually recorded on the hard disk (MASTER), the event currently being recorded is regarded as the last event.

For information about the relationship between files and events, see Section 5-1, "Overview" (page 5-1).

❻ PLAY button

To start playback, press this button, turning it on.

To operate in capstan override mode (when using tape)

Hold down this button, and turn the search dial.

For details of capstan override mode, see the item relating to the search dial (page 2-18).

❼ REW (rewind) button

To use this button, press it, turning it on. Its function depends on the currently selected device, as follows.

For TAPE

This rewinds the tape.
While the INDEX button is lit, this cues up to index information detected during the rewinding operation.

For MASTER or PROGRAM

The effect in this case depends on whether the INDEX button is lit or off, as follows:
• **When the INDEX button is off:**
 Skips to the beginning of the first file or event.
• **When the INDEX button is lit:**
 Skips to the beginning of the current file or event.
 When the unit is in record mode, recording ends.
 If the current position is at the beginning of a file or event, skips to the beginning of the previous file or event.

❽ EJECT button

Use this as follows, depending on the currently selected device.

For TAPE

Press this button to eject the cassette. While the cassette is being ejected, this button lights.

For MASTER or PROGRAM

Press this button to close a file.
This aborts the current operation, and closes the file. The STANDBY button goes off, and the EJECT button lights.

6 Search control section

❶ SHUTTLE button
❷ JOG button
❸ VAR button

SHUTTLE   JOG   VAR

REVERSE   ○   FORWARD
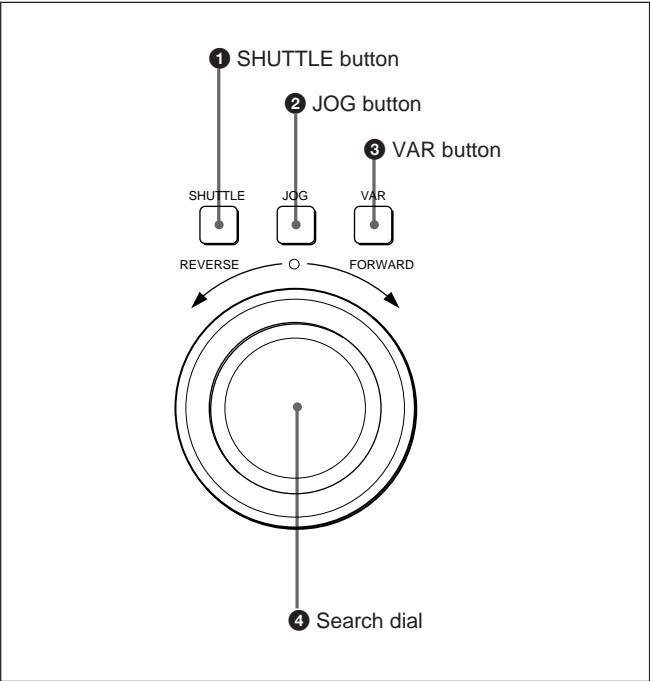
❹ Search dial

❶ SHUTTLE button
To use the search dial for playback in shuttle mode, press this button, turning it on.

For details of playback in shuttle mode, see the item for the search dial ❹.

❷ JOG button
To use the search dial for playback in jog mode, press this button, turning it on.

For details of playback in jog mode, see the item for the search dial ❹.

❸ VAR (variable) button
To use the search dial for playback in variable speed mode, press this button, turning it on.

For details of playback in variable mode, see the item for the search dial ❹.

❹ Search dial
Turn this to carry out playback in the modes shown in the following table. Turn the dial clockwise for forward playback and counterclockwise for reverse playback.
Pressing the dial toggles between shuttle and jog modes or between variable and jog modes.

You can carry out noiseless playback over the whole playback speed range from the hard disk, and in the range of ±1 times normal speed from a Betacam SX format tape.

Playback modes using the search dial

Playback mode	Operations and functions
Shuttle	Press the SHUTTLE button or the search dial so that the SHUTTLE button lights, then turn the search dial. Playback is carried out at a speed determined by the position of the search dial. The playback speed range is as follows: • Using a Betacam SX tape: −50 to +50 times normal speed • Using an analog Betacam tape: −35 to +35 times normal speed for DNW-A100/A50/A45 or −42 to +42 times normal speed for DNW-A100P/A50P/A45P • Using the hard disk: −100 to +100 times normal speed The search dial has detents at the still position and at ±10 times normal speed. The maximum shuttle mode playback speed can be changed by changing the setting of item 102 in the extended menu *(see page 7-9)*.
Jog	Press the JOG button or the search dial so that the JOG button lights, then turn the search dial. Playback is carried out at a speed determined by the speed of rotation of the search dial. The playback speed range is −1 to +1 time normal speed: The search dial has no detents.
Variable speed	Press the VAR button, turning it on, then turn the search dial. You can control the playback speed finely (47 steps) in the range of ±1 times normal speed. The search dial has detents at the still position and at ±1 times normal speed.
Capstan override (using a tape)	Hold down the PLAY button and turn the search dial to adjust the playback speed in the range of ±15%. Use this for phase adjustment between this unit and an external connected device.

Changing the setting of extended menu item 101 enables you to use the search dial alone to select shuttle/jog/variable speed modes, without using the SHUTTLE, JOG, and VAR buttons.

2-1-3 Subsidiary Control Panel

Pull out the lower control panel to reveal the subsidiary control panel.

① EMPHASIS switch

② CHARACTER switch

③ DOLBY NR switch

④ OUT REF switch

⑤ PROCESS CONTROL switch

⑮ CAPSTAN LOCK switch

⑭ KEY INHIBIT switch

⑬ REC INHIBIT switch

⑫ SC knob

⑪ SYNC knob

⑩ CHROMA PHASE knob and PRESET/MANUAL switch

⑨ Y/C DELAY knob and PRESET/MANUAL switch

⑧ SET UP (DNW-A100/A50/A45)/BLACK LEVEL (DNW-A100P/A50P/A45P) knob and PRESET/MANUAL switch

⑦ CHROMA knob and PRESET/MANUAL switch

⑥ VIDEO knob and PRESET/MANUAL switch

① EMPHASIS switch

Set this to ON to apply emphasis to an analog input audio signal or analog playback audio signal to convert the analog audio signal to a digital audio signal.

② CHARACTER switch

Select whether or not to superimpose text information such as time code, menu settings, and alarm messages on the video signal output from the COMPOSITE VIDEO OUTPUT 3 (SUPER) connector.

ON: Superimposed text.
OFF: No superimposed text.
The factory default setting is ON.

③ DOLBY NR (noise reduction) switch

When using an oxide tape, switch the Dolby noise-reduction system for analog audio on or off.
When using metal tape, the Dolby noise-reduction system is automatically switched on, regardless of the setting of this switch.

ON: Enable the Dolby noise-reduction system for playback of an analog Betacam oxide tape.

OFF: Disable the Dolby noise-reduction system for playback of an analog Betacam oxide tape.
The factory default setting is OFF.

④ OUT REF (reference) switch

When the device specification buttons *(see page 2-12)* are set to select an external device (EXT) as the player, this switch selects the reference signal for this unit depending on the combination of the setting of extended menu item 309 and the operating state of the unit. (If other than an external device is specified as the player, then regardless of the setting of this switch, the signal input to the REF. VIDEO connector is always selected as the reference signal.)

REF: Use the signal input to the REF. VIDEO connector as the reference signal. During recording input digital audio and video signals must be synchronized with this signal.

INPUT VIDEO: Use the input video signal selected by the VIDEO INPUT SELECT switch as the reference signal.

Note

Operating this switch during playback may cause a momentary interruption of the playback sound.

❺ PROCESS CONTROL switch
This selects the method of control of the internal digital video processor.

REMOTE: Select this position to use an optional BVR-50/50P Remote Control Unit for remote control of the internal digital video processor.

MENU: Select this position to use setup menus to change the settings for the internal digital video processor.

LOCAL: Select this position to use the subsidiary control panel to change the settings for the internal digital video processor.

❻ VIDEO knob and PRESET/MANUAL switch
The switch makes the selection described immediately below. When it is set to MANUAL, you can use the knob to adjust the video signal output level.

PRESET: Regardless of the position of the knob, the video signal output level is set to the reference value.

MANUAL: You can adjust the video signal output level in the range ±3 dB.
You can change the adjustment range using extended menu item 714.

❼ CHROMA (chrominance) knob and PRESET/ MANUAL switch
The switch makes the selection described immediately below. When it is set to MANUAL, you can use the knob to adjust the chrominance signal output level.

PRESET: Regardless of the position of the knob, the chrominance signal output level is set to the reference value.

MANUAL: You can adjust the chrominance signal output level in the range ±3 dB.
You can change the adjustment range using extended menu item 714.

❽ SET UP (DNW-A100/A50/A45) / BLACK LEVEL (DNW-A100P/A50P/A45P) knob and PRESET/MANUAL switch
The switch makes the selection described immediately below. When it is set to MANUAL, you can use the knob to adjust the (black) setup level (525/60 system) or black level (625/50 system).

PRESET: Regardless of the position of the knob, the setup level (525/60 system) or black level (625/50 system) is set to the reference value.

MANUAL: You can adjust the setup level (525/60 system) in the range ±30 IRE [1], or the black level (625/50 system) in the range ±210 mV.

❾ Y/C DELAY knob and PRESET/MANUAL switch
The switch is effective only for playback of video recorded in Betacam or Betacam SP format. It makes the selection described immediately below. When it is set to MANUAL, you can use the knob to adjust the Y/C delay.

PRESET: Regardless of the position of the knob, the Y/C delay is set to the reference value.

MANUAL: You can adjust the Y/C delay in the range ±100 ns.

❿ CHROMA (chrominance) PHASE knob and PRESET/MANUAL switch
The switch makes the selection described immediately below. When it is set to MANUAL, you can use the knob to adjust the chrominance phase (the phase difference from a burst signal).

PRESET: Regardless of the position of the knob, the chrominance phase is set to the reference value.

MANUAL: You can adjust the chrominance phase in the range ±30°.

⓫ SYNC knob
This adjusts the output signal sync phase with respect to the input reference signal to this unit, in a range of ±15 μs.
Use this adjustment when the output phase of this unit is not accurately aligned with the reference signal phase, or when carrying out special effects editing with this unit and other VTRs connected to a switcher or other equipment.

....

1) IRE: A unit for representing a video level laid down by the IRE (Institute of Radio Engineers). The IRE is now the IEEE (Institute of Electrical and Electronic Engineers).

⓬ SC (subcarrier) knob
This adjusts the output signal subcarrier phase with respect to the input reference signal to this unit, in a range of ±200 ns.
For editing with composite signals, use this adjustment when the output phase of this unit with respect to the phase of the reference signal is not accurately aligned with the subcarrier phase. This adjustment does not affect the output SCH (subcarrier - sync) phase, which remains constant.

⓭ REC (record) INHIBIT switch
When this switch is in the ON position, the REC INHIBIT indicator in the lower control panel lights, and recording on tape is no longer possible. (Recording to the hard disk is not inhibited.)

⓮ KEY INHIBIT switch
When this switch is in the ON position, the KEY INHIBIT indicator in the lower control panel lights, and the buttons in the upper control panel and lower control panel specified by the setting of extended menu item 118 are disabled.

⓯ CAPSTAN LOCK switch
For playback and editing from tape, this switch selects the capstan lock mode.
For DNW-A100/A50/A45
  2FD: The capstan servo locks every two fields.
    • There may be a color framing difference between the tape playback output and the reference signal selected by the OUT REF switch.
    • For assemble editing, there may be a color framing discontinuity at edit points.
    During playback of a tape recorded with a composite signal as source, there may be a horizontal shift (H shift) of the image. (When extended menu item 712 is set to ON.)
  4FD: The capstan servo locks every four fields.
    • There is no color framing difference between the tape playback output and the reference signal selected by the OUT REF switch.
    • For assemble editing, color framing continuity at edit points is assured.
    During playback of a tape recorded with a composite signal as source, no horizontal shift (H shift) of the image occurs.
    Select this position for editing and playback of composite signals when video phase continuity at edit points is required, or for A/B roll editing.
  8FD (625/50): This position is not normally used in a 525/60 system.

If you select this position in a 625/50 system, the tape playback output is subject to virtual color framing, frame-locked to the reference signal selected by the OUT REF switch. (This unit is not subject to color frame locking to the reference signal.)

Note

When the unit is set to operate in the 625/50 (PAL) system using basic menu item 013, you cannot use composite input signals. (The BKDW-505 composite input option is for 525/60 systems only.)

For DNW-A100P/A50P/A45P
  2FD/4FD: The capstan servo locks every two fields (2FD)/four fields (4FD).
    • There may be a color framing difference between the tape playback output and the reference signal selected by the OUT REF switch.
    • For assemble editing, there may be a color framing discontinuity at edit points.
    During playback of a tape recorded with a composite signal as source, there may be a horizontal shift (H shift) of the image. (When extended menu item 712 is set to ON.)
  8FD: The capstan servo locks every eight fields.
    • There is no color framing difference between the tape playback output and the reference signal selected by the OUT REF switch.
    • For assemble editing, color framing continuity at edit points is assured.
    During playback of a tape recorded with a composite signal as source, no horizontal shift (H shift) of the image occurs.
    Select this position for editing and playback of composite signals when video phase continuity at edit points is required, or for A/B roll editing.

Note

When the unit is set to operate in the 525/60 (NTSC) system using basic menu item 013, you cannot use composite input signals. (The BKDW-506 composite input option is for 625/50 systems only.)

2-2 Connector Panel

Cooling fan

1 Analog (digital: option) audio input/output section *(See page 2-23.)*

Cooling fan

2 Analog video input/output section *(See page 2-23.)*

3 Digital input/output section *(See page 2-24.)*

4 Time code input/output section and audio monitor signal output section *(See page 2-24.)*

5 External device connectors *(See page 2-25.)*

6 Power supply section *(See page 2-25.)*
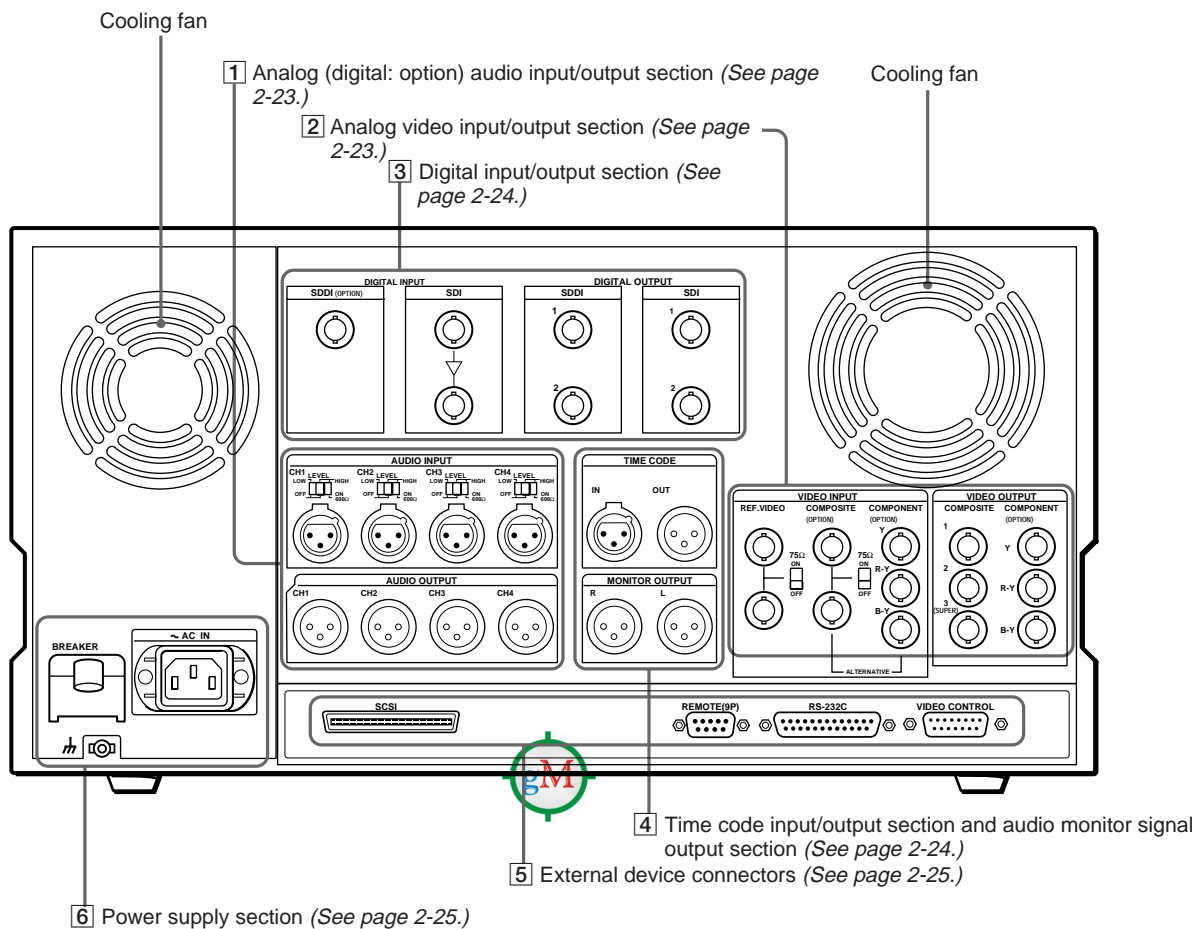
1 Analog (digital: option) audio input/ output section

In the standard version this is an analog audio input/ output section. By means of an option, you can replace it by AES/EBU digital audio inputs and outputs.

❶ AUDIO INPUT CH1 to CH4 connectors

❷ AUDIO INPUT CH1 to CH4 LEVEL switches

AUDIO INPUT

CH1 LEVEL   CH2 LEVEL   CH3 LEVEL   CH4 LEVEL
LOW   HIGH   LOW   HIGH   LOW   HIGH   LOW   HIGH
OFF   ON   OFF   ON   OFF   ON   OFF   ON
      600Ω   600Ω   600Ω   600Ω

AUDIO OUTPUT
CH1   CH2   CH3   CH4

❸ AUDIO OUTPUT CH1 to CH4 connectors
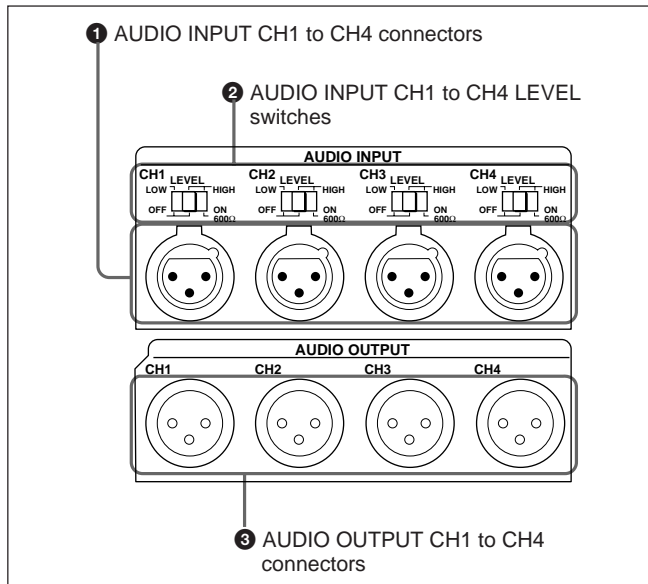
❶ AUDIO INPUT CH1 to CH4 (channels 1 to 4) connectors (XLR 3-pin, female)

Input analog audio signals to channels 1 to 4.

❷ AUDIO INPUT CH1 to CH4 (channels 1 to 4) LEVEL switches

Set these for each channel as shown in the following table, according to the audio input levels to the AUDIO INPUT CH1 to CH4 connectors and the impedance.

AUDIO INPUT CH1 to CH4 LEVEL switch settings

Audio input level and impedance		Switch setting
Level	**Impedance**	
–60 dBu (microphone input)	High impedance (approx. 20 kΩ)	LOW-OFF (left position)
+4 dBu (line audio input)	High impedance (approx. 20 kΩ)	HIGH-OFF (center position)
+4 dBm (line audio input)	600 Ω	HIGH-ON 600 Ω (right position)

❸ AUDIO OUTPUT CH1 to CH4 connectors (XLR 3-pin, male)

These output analog audio signals for channels 1 to 4.

2 Analog video input/output section

❶ REF. VIDEO INPUT connectors and 75 Ω termination switch

❷ COMPOSITE VIDEO INPUT connectors and 75 Ω termination switch

❸ COMPONENT VIDEO INPUT connectors

VIDEO INPUT
REF.VIDEO   COMPOSITE   COMPONENT
            (OPTION)   (OPTION)
                        Y
75Ω   75Ω
ON   ON   R-Y
OFF   OFF
                        B-Y
        ALTERNATIVE

VIDEO OUTPUT
COMPOSITE   COMPONENT
            (OPTION)
1
            Y
2
            R-Y
3
(SUPER)   B-Y

❹ COMPOSITE VIDEO OUTPUT connectors

❺ COMPONENT VIDEO OUTPUT connectors

❶ REF. (reference) VIDEO INPUT connectors (BNC type) and 75 Ω termination switch

Input a reference video signal. Input a video signal with chroma burst (VBS) or a monochrome video signal (VS). When using the loop-through connection set the switch to the OFF position, and otherwise to the ON position.

❷ COMPOSITE VIDEO INPUT connectors (BNC type) and 75 Ω termination switch

Input analog composite video signals.
When using the loop-through connection set the switch to the OFF position, and otherwise to the ON position.
Of these and the COMPONENT VIDEO INPUT connectors ❸, only one set can be used, according to an option.
To use these connectors requires the BKDW-505 (for DNW-A100/A50/A45) or BKDW-506 (for DNW-A100P/A50P/A45P) option.

❸ COMPONENT VIDEO INPUT connectors (BNC type)

Input analog component video signals (Y/R–Y/B–Y).
Of these and the COMPOSITE VIDEO INPUT connectors ❷, only one set can be used, according to an option.
To use these connectors requires the BKDW-104 option.

❹ COMPOSITE VIDEO OUTPUT connectors (BNC type)

These output analog composite video signals. When the CHARACTER switch on the subsidiary control panel is set to ON, the output from connector 3 (SUPER) has superimposed text information such as time code, menu settings, and alarm messages.

❺ COMPONENT VIDEO OUTPUT connectors (BNC type)

These output analog component video signals (Y/R–Y/B–Y).

③ Digital input/output section

❶ SDDI DIGITAL INPUT connector (DNW-A100/A100P only)
❷ SDI DIGITAL INPUT connectors
❸ SDDI DIGITAL OUTPUT connectors (DNW-A100/A100P only)
❹ SDI DIGITAL OUTPUT connectors
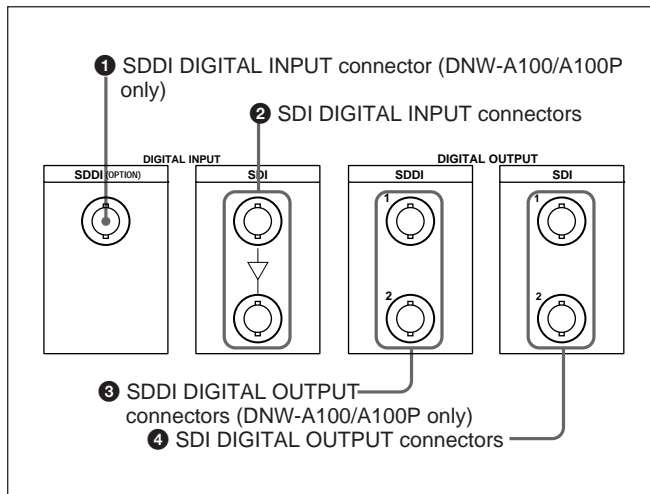
❶ SDDI (Serial Digital Data Interface) DIGITAL INPUT connector (BNC type) (DNW-A100/A100P only)

Input SDDI format digital video/audio signals. This connector can only be used when the optional SDDI input board is installed.

❷ SDI (Serial Digital Interface) DIGITAL INPUT connectors (BNC type)

Input D1 format digital video/audio signals. Of the two connectors, the upper one is for input, and the lower one is for a active-through connection.

❸ SDDI (Serial Digital Data Interface) DIGITAL OUTPUT connectors (BNC type) (DNW-A100/A100P only)

These output SDDI format digital video/audio signals.

❹ SDI (Serial Digital Interface) DIGITAL OUTPUT connectors (BNC type)

These output D1 format digital video/audio signals.

④ Time code input/output section and audio monitor signal output section

❶ TIME CODE IN connector
❷ TIME CODE OUT connector
❸ MONITOR OUTPUT connectors
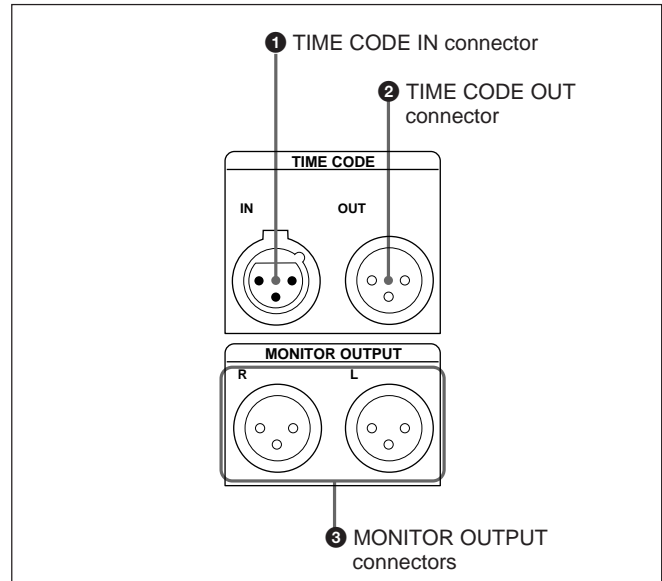
❶ TIME CODE IN connector (XLR 3-pin, female)
To record time code from an external device, input a time code signal from the time code output connector of the other device.

❷ TIME CODE OUT connector (XLR 3-pin, male)
This outputs a time code according to the operating state of the unit, as follows:
• During playback: the playback time code
  By setting extended menu item 606, you can also output the time code from the internal time code generator locked to the playback time code..
• During recording: the time code generated by the internal time code generator or the time code input to the TIME CODE IN connector.

❸ MONITOR OUTPUT connectors (XLR 3-pin, male)
According to the setting of the AUDIO INPUT / MONITOR SELECT buttons (Before Version 2.00) or the AUDIO INPUT/MIXING/MONITOR SELECT buttons (Version 2.00 or later) on the upper control panel, two (L and R) audio monitor signals are output.

5 **External device connectors**

1 SCSI connector
2 REMOTE (9P) connector
3 RS-232C connector
4 VIDEO CONTROL connector

SCSI   REMOTE(9P)   RS-232C   VIDEO CONTROL
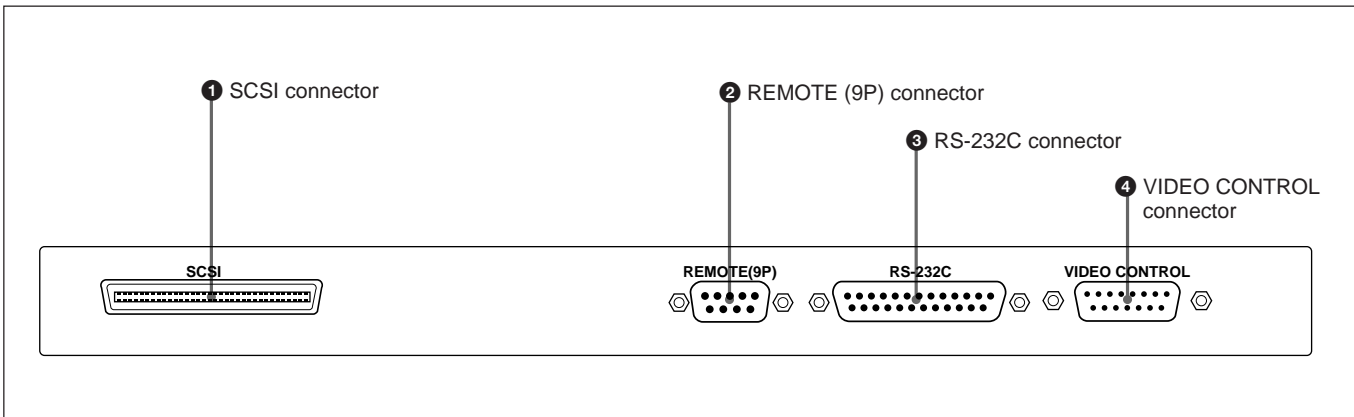
1 **SCSI connector (68-pin)**
Use this for connection to another device supporting SCSI 2.

Note

If this connector is not used, be sure to attach a SCSI terminator. If no SCSI terminator is attached, the hard disk may malfunction.

2 **REMOTE (9P) connector (D-subminiature 9-pin)**
For editing with two DNW-A100/A100P units, or with another D-1, D-2, or Betacam VTR controlled by a BVE-series editor such as a BVE-900/910/2000/9000/9000P/9100/9100P, use the supplied 9-pin connector remote control cable for connection to the other device.

3 **RS-232C connector (D-subminiature 25-pin)**
Use this for monitoring and diagnosis of the state of this unit from an external computer, using ISR (Interactive Status Reporting).

4 **VIDEO CONTROL connector (D-subminiature 15-pin)**
For remote control of the internal digital video processor, connect an optional BVR-50/50P Remote Control Unit or similar.
Always power off this unit before connecting the remote control unit.

6 **Power supply section**

2 BREAKER button
~ AC IN
BREAKER
1 AC IN connector
3 Ground terminal
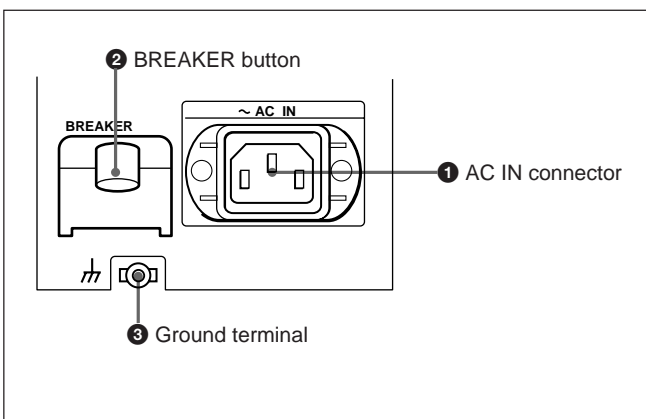
1 **AC IN connector**
Use the supplied power cord to connect this to an AC outlet.

2 **BREAKER button**
This jumps out if an excess current flows on the primary side of the AC power circuit.

3 **Ground terminal**
Connect this to ground.

3-1 Connections to External Devices

This section gives examples of how to connect an external editor to the unit, or how to use the unit connected to an analog device such as a Betacam SP VTR.

• Connection to a DNE-50/50P external editor

DNW-A100/A100P

SDI DIGITAL OUTPUT

REMOTE (9P)

COMPONENT or COMPOSITE VIDEO OUTPUT

REMOTE (9P)   SDI IN

DNE-50/50P

Video monitor
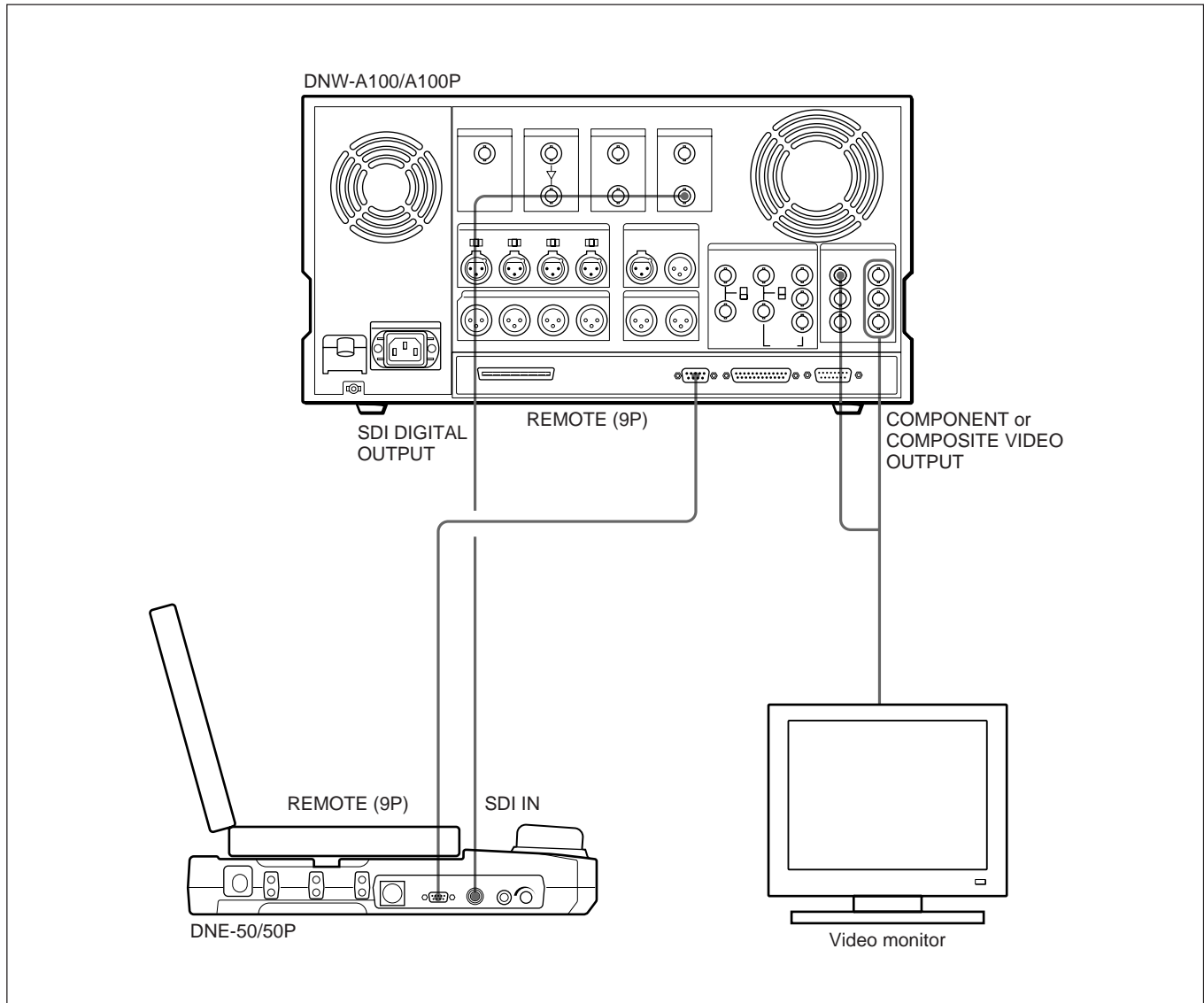
3-1 Connections to External Devices

• Connection to an analog device

AUDIO INPUT CH1 to CH4 LEVEL switches:
set according to the analog input level
and the impedance. (See page 2-23.)

75 Ω termination switch:
set to OFF when using an analog
composite video signal bridge
connection, and otherwise to ON.

Video monitor

DNW-A100/
A100P

COMPONENT
or COMPOSITE
VIDEO
OUTPUT

AUDIO
INPUT CH1
to CH4

REMOTE (9P)

COMPOSITE
VIDEO INPUT

COMPONENT
VIDEO INPUT

AUDIO OUTPUT CH1
to CH4 (analog)

DNW-A100/A100P/A50/
A50P/A45/A45P, DVR-28/
28P/20/20P D2 VTR, BVH-
3000/3000PS or other 1-inch
VTR (player)[a]

REMOTE (9P)

VIDEO OUTPUT
(composite)

BVW-75/70/65/60 series
Betacam SP VTR
(player)[a]

AUDIO OUTPUT CH1 to CH4 (analog)

REMOTE (9P)

VIDEO OUTPUT (component)

a) You cannot connect more than one external device as the player to the unit.

3-2 Reference Signals for Video Output and Servo System

This section describes how reference signals for the video output signals and servo system are selected.

The output from the internal reference video signal generator is supplied to the output video signal and servo circuits as a reference signal.

3-2-1 External Sync Signal for the Internal Reference Video Signal Generator

The internal reference video signal generator is synchronized either to a reference video signal or to an input video signal. Depending on the settings of the OUT REF switch on the subsidiary control panel and extended menu item 309, and the input signal selection, the external synchronization status is as shown in the following flowchart.

a) VTR or hard disk only operation, with an external device (EXT) specified as the player regardless of what device is specified as the recorder.
b) Currently recording: status in which recording on tape or the hard disk is being carried out regardless of what device is specified as the recorder.
c) Currently editing: status in which buttons in the editing mode setting section have been set for assemble or insert editing.
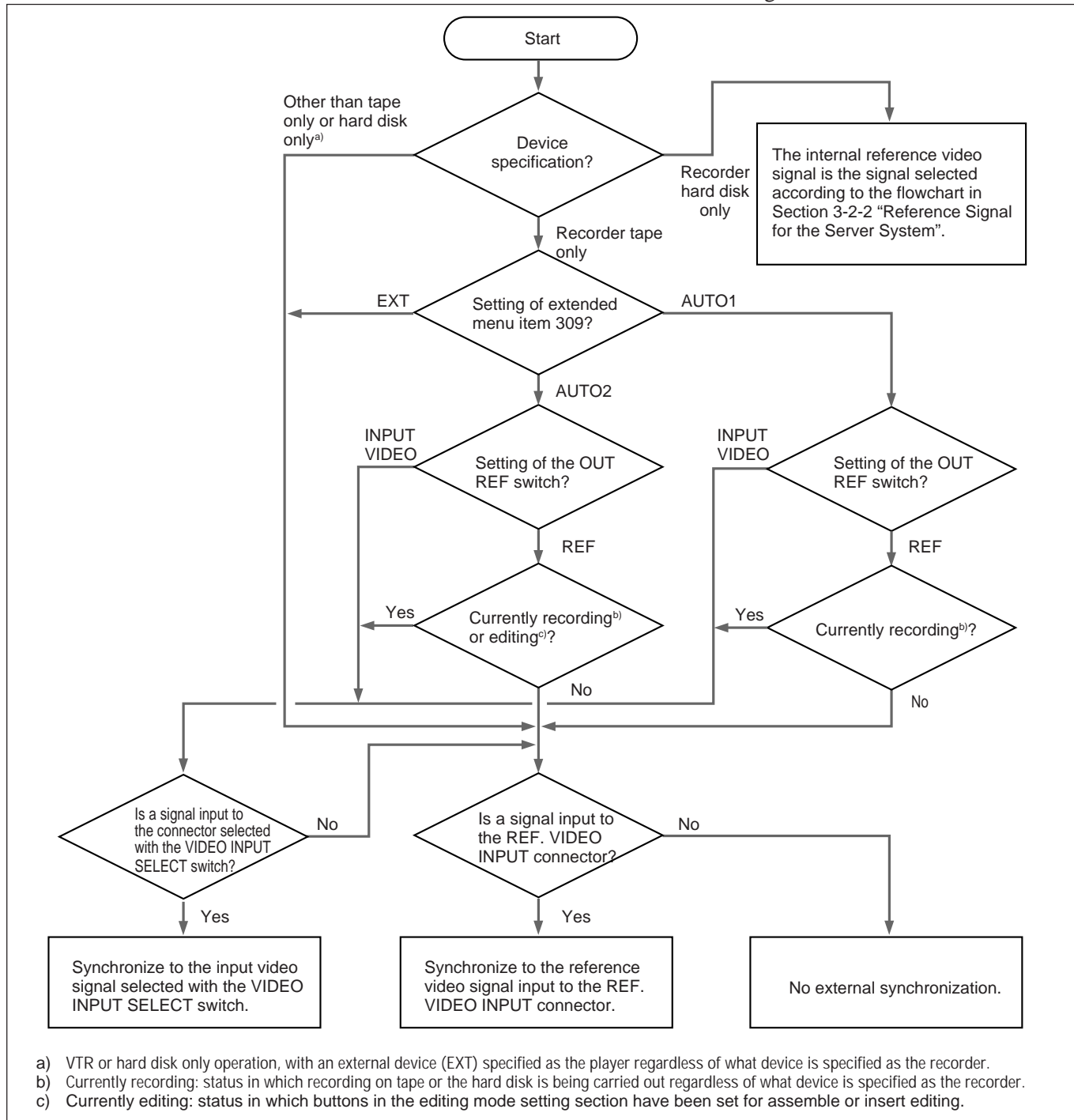
3-2 Reference Signals for Video Output and Servo System

3-2-2 Reference Signal for the Servo System

The VTR automatically selects either the input video signal or the output from the internal reference video signal generator as the reference signal for the servo system. Which of the two signals is selected depends on the operational status of the VTR, as shown in the following flowchart.

a) VTR or hard disk only operation, with an external device (EXT) specified as the player regardless of what device is specified as the recorder.

b) Currently recording: status in which recording on tape or the hard disk is being carried out regardless of what device is specified as the recorder.

c) Currently editing: status in which buttons in the editing mode setting section have been set for assemble or insert editing.

3-2-3 Connecting Reference Signals

Connect reference signals as shown below, according
to the way in which the unit is to be used.

•Connections for recording from a switcher or signal generator

Reference signal

Switcher or signal generator

SDI DIGITAL INPUT

REF. VIDEO INPUT

DNW-A100/A100P

75 Ω termination switch: ON
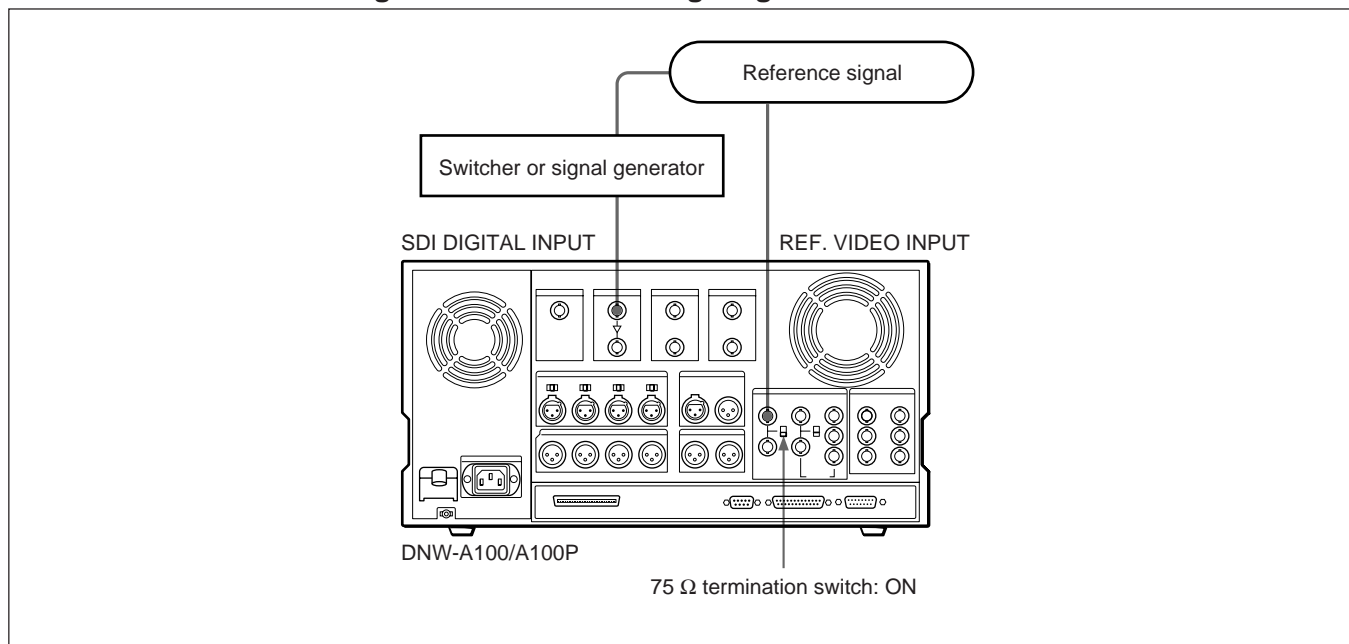
•Connections for recording from an external VTR (player)

SDI DIGITAL INPUT

REF. VIDEO
INPUT

SERIAL V/A
OUTPUT

DNW-A100/
A100P
(recorder)

REF. VIDEO
INPUT

75 Ω termination switch: OFF

75 Ω termination switch: ON

DVW-A510/A510P/
510/510P series
(player)
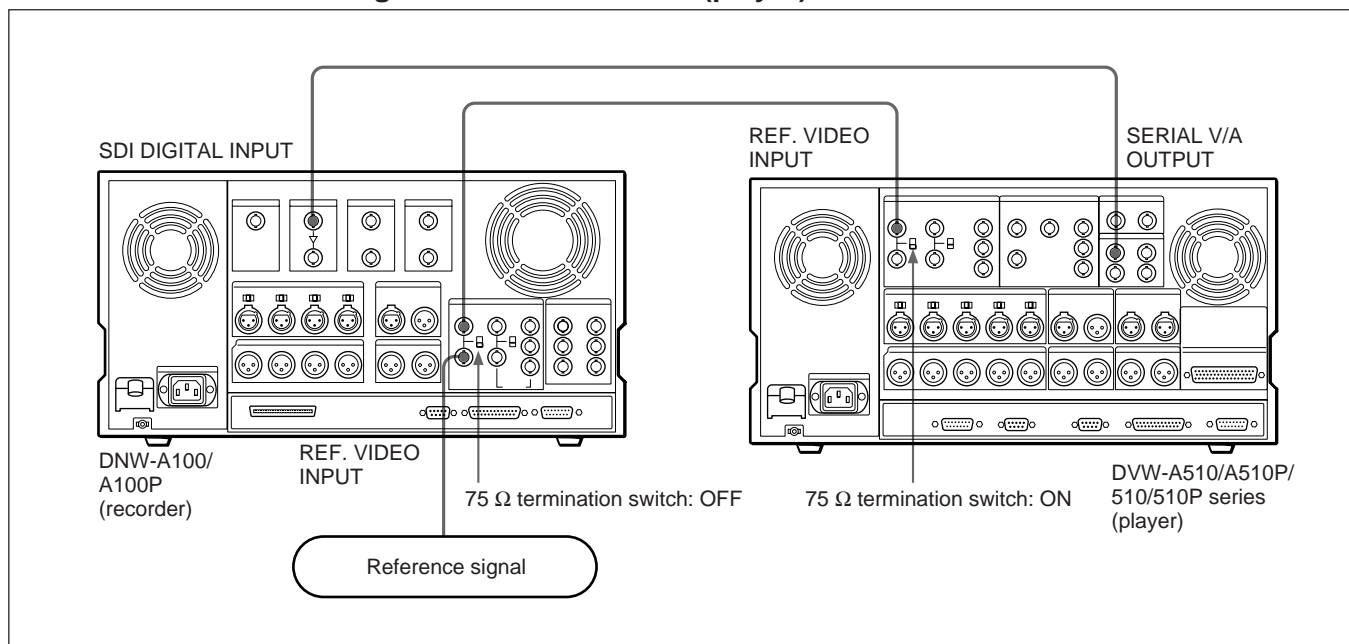
Reference signal

3-2 Reference Signals for Video Output and Servo System

• **Connections for playback**

Reference signal

Serial monitor

SDI DIGITAL OUTPUT   REF. VIDEO INPUT

DNW-A100/A100P

75 Ω termination switch: ON
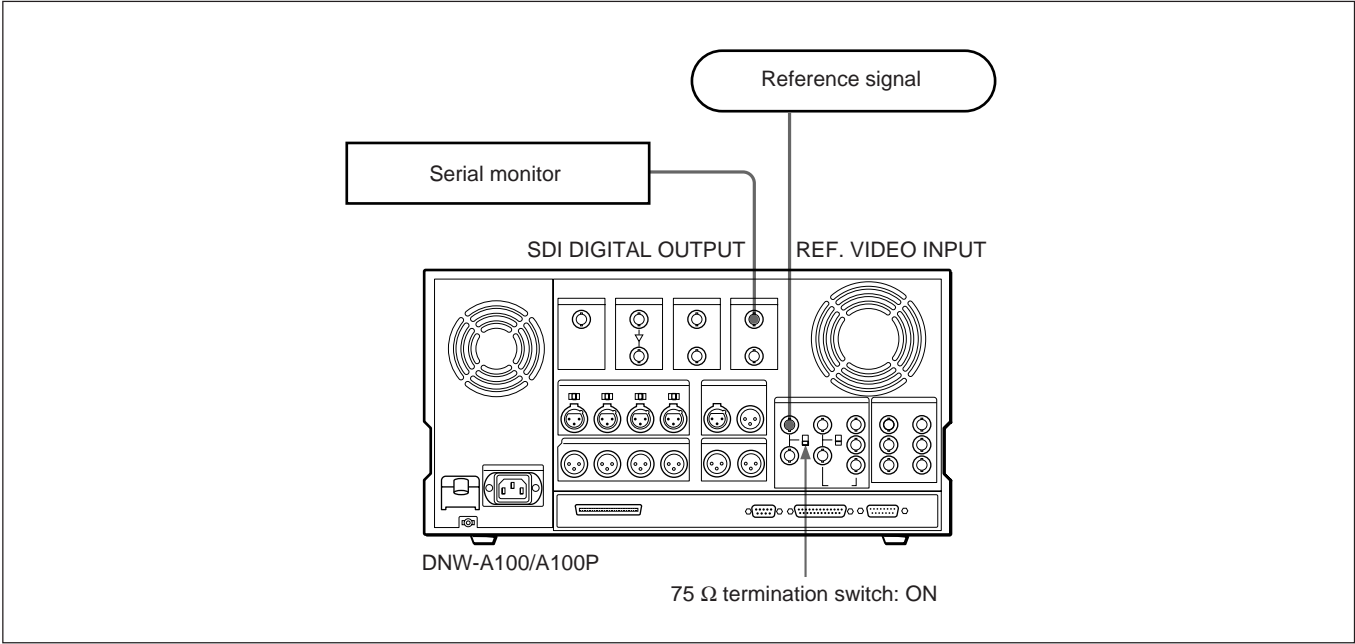
3-3 Setup

The principal setup operations before operating this unit can be carried out using setup menus.
The setup menus of this unit comprise a basic menu, an extended menu, and a disk file management menu. The contents of these menus are as follows.

Basic menu:
• Items relating to the hours meter
• Items relating to operation
• Items relating to menu banks

Extended menu:
• Items relating to the control panels
• Items relating to the remote control interface
• Items relating to editing operations
• Items relating to preroll
• Items relating to tape protection
• Items relating to the time code generator
• Items relating to video control
• Items relating to audio control
• Items relating to digital processing

Disk file management menu:
Items relating to the creation and management of files on the built-in hard disk.

For detailed information about the items, except for the basic menu items relating to the hours meter, of these menus and how to use them, see Chapter 7, "Menu System".
For details of the basic menu items relating to the hours meter, see Section 8-5, "Digital Hours Meter" (page 8-3).

This unit allows four different sets of menu settings to be saved in what are termed "menu banks" numbered 1 to 4. Saved sets of menu settings can be recalled for use as required.

For more information about the menu banks, see the section "Menu bank operations (menu items B01 to B14)" (page 7-8) .
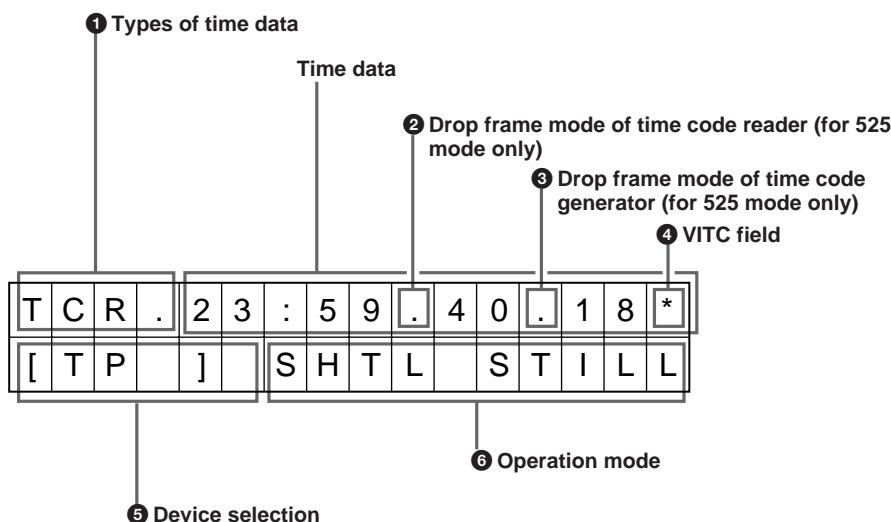
3-4 Superimposed Character Information

When the CHARACTER switch on the subsidiary control panel is set to ON, the video signal output from the COMPOSITE VIDEO OUTPUT 3 (SUPER) connector contains superimposed character information, including time code, menu settings, and alarm messages.

Adjusting the character display

You can adjust the position, size and type of the superimposed characters using the basic menu.

For details of the basic menu, see Section 7-2, "Basic Menu" (page 7-1).

Information displayed

❶ **Types of time data**

Time data

❷ **Drop frame mode of time code reader (for 525 mode only)**

❸ **Drop frame mode of time code generator (for 525 mode only)**

❹ **VITC field**

| T | C | R | . | | 2 | 3 | : | 5 | 9 | . | 4 | 0 | . | 1 | 8 | * |
| [| T | P | |] | | S | H | T | L | | | S | T | I | L | L |

❻ **Operation mode**

❺ **Device selection**

Note

The display shown above corresponds to the factory default settings of the unit.
Changing the setting of basic menu item 005 allows different time data to be displayed in the bottom line of the display.

For details of basic menu item 005, see Section 7-2-1, "Items in the Basic Menu" (page 7-1).

❶ Types of time data

Display	Meaning
CTL	CTL counter data
TCR	LTC reader time code
UBR	LTC reader user's bits
TCR.	VITC reader time code
UBR.	VITC reader user's bits
TCG	Time code generator time code
UBG	Time code generator user's bits
IN	IN point
OUT	OUT point
AI	Audio IN point
AO	Audio OUT point
DUR	Duration between any two of the four edit points (IN, OUT, audio IN, audio OUT)

Note

If the time data or user's bits cannot be read correctly, they will be displayed with an asterisk. For example, "T*R", "U*R", "T*R." or "U*R.".

❷ **Drop frame mode for time code reader (for 525 mode only)**
"**.**": Drop frame mode
"**:**": Non-drop-frame mode

❸ **Drop frame mode for time code generator (for 525 mode only)**
"**.**": Drop frame mode (factory preset)
"**:**": Non-drop-frame mode

❹ **VITC field**
" " (blank): Fields 1 and 3
"***": Fields 2 and 4

❺ **Device selection**
Indication of the device selected on the control panel.
This is displayed in one of the following three formats depending on the unit's status.
• **[device name indication]:** SELF mode (RECORDER button and PLAYER button both unlit) or 9-pin remote control mode (9P indicator lit)
• **P [device name indication]:** Player mode (PLAYER button lit)
• **R [device name indication]:** Recorder mode (RECORDER button lit)

The device name indications used for this display are as follows.
EXT: EXT
TP: TAPE
**MST:** DISK MASTER
PGM: DISK PROGRAM
D.P: DISK PLAYER PORT (hard disk playback being carried out through 9-pin remote control)
D.R: DISK RECORDER PORT (hard disk recording being carried out through 9-pin remote control)

❻ **Operation mode**
The field is divided into three blocks, A, B and C.
• Block A displays the operation mode.
• Block B displays the servo lock status or tape speed.
• Block C displays a ■ mark to indicate an edit section during automatic editing.
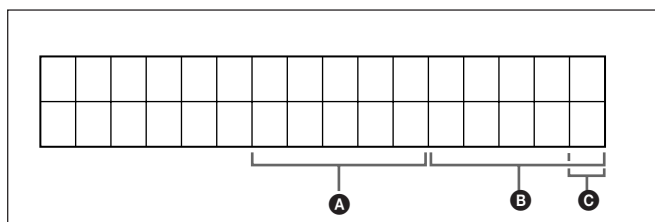
Display		Operation mode
Block A	**Block B**	
TAPE UNTHD		Cassette is not loaded.
STDBY OFF		Standby off mode
T.RELEASE		Tape tension released
STOP		Stop mode
F.FWD		Fast forward mode
REW		Rewind mode
PREROLL		Preroll mode
PLAY		Playback mode (servo unlocked)
PLAY	LOCK	Playback mode (servo locked)
PLAY	Deviation from normal speed (%)	Capstan override mode
REC		Record mode (servo unocked)
REC	LOCK	Record mode (servo locked)
EDIT		Edit mode (servo unlocked)
EDIT	LOCK	Edit mode (servo locked)
JOG	STILL	A still picture in jog mode
JOG	FWD	Jog mode in forward direction
JOG	REV	Jog mode in reverse direction
SHTL	(Speed)	Shuttle mode
VAR	(Speed)	Variable mode
FEED	(Speed)	Feed play mode
SPD	(Speed)	Initial speed setting for feed play
PREVIEW		Preview mode
AUTO EDIT		Automatic editing mode
REVIEW		Review mode

3-5 Cassettes

3-5-1 Cassette Types

This unit uses a ¹/₂-inch tape width for both recording and playback. You can use Betacam SX cassettes, Betacam SP cassettes (metal tape), or UVW cassettes (metal tape).

Betacam SX cassettes

Small cassettes	BCT-12SX/22SX/32SX/60SX
Large cassettes	BCT-64SXL/94SXL/124SXL/184SXL

Betacam SP cassettes (metal tape)

Small cassettes	BCT-5M$_A$/10M$_A$/20M$_A$/30M$_A$
Large cassettes	BCT-5ML$_A$/10ML$_A$/20ML$_A$/30ML$_A$/60ML$_A$/ 90ML$_A$

UVW cassettes (metal tape)

Small cassettes	UVWT-10M$_A$/20M$_A$/30M$_A$
Large cassettes	UVWT-60ML$_A$/90ML$_A$

The oxide tapes recorded in Betacam format can be used for playback only.

3-5-2 Inserting and Ejecting Cassettes

It is not possible to insert or eject a cassette unless the unit is powered on.

Inserting a cassette
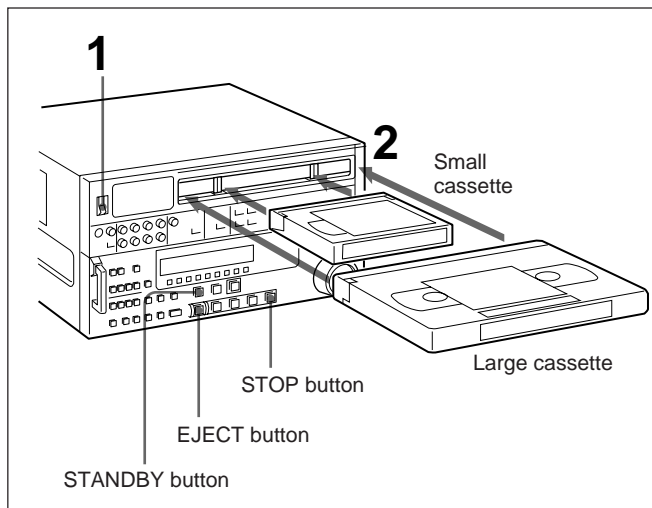
1 Turn the POWER switch on.

2 Check the following points, before inserting the cassette in the orientation shown in the figure.
  • Check that message "ERROR-10" is not shown in the time data display area 1.
  • Check that there is no slack in the tape.

  The cassette is drawn into the unit, and the STANDBY and STOP buttons light.

If message "ERROR-10" appears in the time data display area 1 , there is moisture condensation in the unit. For steps to take when "ERROR-10" is displayed, see Section 8-4, "Moisture Condensation" (page 8-2).

Removing slack from the tape

Press in one of the reels with a finger, and turn gently in the direction shown by the arrows until there is no slack in the tape.
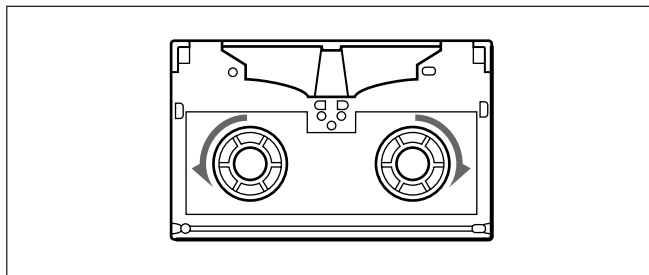
Ejecting a cassette

Press the EJECT button.

If the tape slacks inside the unit, pressing the EJECT button may not eject the cassette. For information about how to remove the cassette in such a case, refer to the Maintenance Manual.

3-5-3 Preventing Accidental Erasure of Recordings

To prevent a tape from being inadvertently erased, press in the red erase-protect plug on the cassette.

Press in the red erase-protect plug. ("ON")
Return this plug to its original position to enable recording on the tape again. ("OFF")
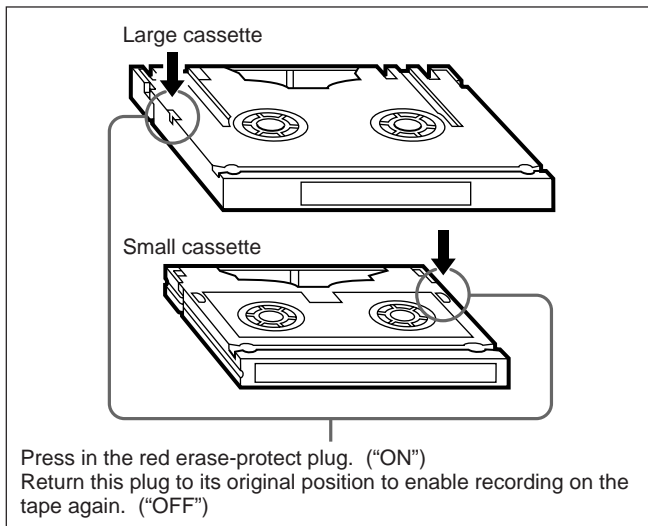
4-1 Recording

This section describes recording on the VTR and hard disk built into the unit.

4-1-1 Preparations for Recording

Switch settings

Before beginning recording, make any necessary switch settings.

For details of the settings of each of the switches, refer to the pages indicated in parenthesis.

VIDEO INPUT SELECT switch (see page 2-3): select the input video signal

Audio selection function selector switch (see page 2-3): select the input audio signal

AUDIO INPUT/MONITOR SELECT buttons (Before Version 2.00)
AUDIO INPUT/MIXING/MONITOR SELECT buttons (Version 2.00 or later) (see page 2-4): select the audio channel(s) to be monitored

REMOTE/LOCAL switch (see page 2-7): 9P indicator off

POWER switch: ON

REC controls (see page 2-3): adjust the audio recording levels (see page 4-2)

PB.EE button (see page 2-9): lit

REC INHIBIT switch (see page 2-21): OFF

Device specification buttons (see page 2-12): select the device on which operations are to be carried out (see page 4-2)

CTL/TC/UB button (see page 2-9): select the time data to be displayed

Selecting the device on which operations are to be carried out

Carry out one of the following operations depending on which of the built-in VTR or hard disk is subject to operations.

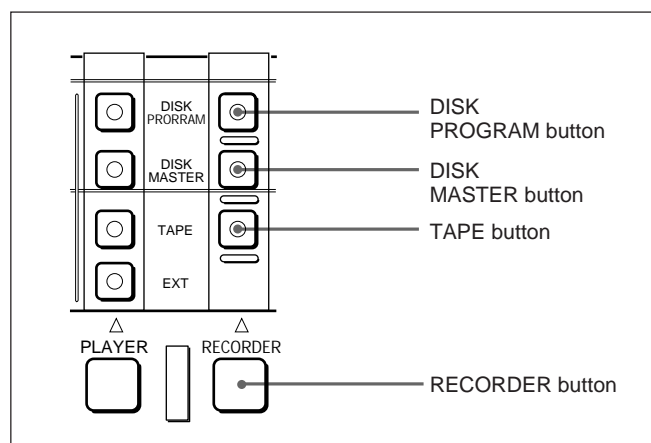- **To carry out operations on the built-in VTR**
  Hold down the RECORDER button, and press the TAPE button in the RECORDER row, turning it on.
- **To carry out operations on the hard disk**
  Hold down the RECORDER button, and press the DISK PROGRAM or DISK MASTER button in the RECORDER row, turning it on.

Adjusting the audio recording levels

When carrying out audio recording at a reference level
Leave the REC controls pressed in. The audio signals will be recorded at a preset reference level (a reference 0 dB indication for an input of +4 dBm).

Manually adjusting the recording levels
For each channel, pull out the REC control in the upper control panel, and adjust so that the audio level indication is 0 dB for an average volume. Carry out the adjustment in E-E mode.

For details of selecting the E-E mode, see the description of the REC button in the tape/disk transport control section (page 2-16) and the PB.EE button in the monitor/menu/display setting section (page 2-9).

To change the display range of the audio level indications

Press the DISPLAY FULL/FINE switch *(see page 2-5).*

To monitor the simultaneous playback of the recorded video and audio signals

Make a setting with extended menu item 316 to enable the CONFI playback function.

For details, see section 7-3, "Extended Menu" (page 7-9).

To use the emphasis function

To add emphasis to the analog input audio signal or analog playback audio signal, set the EMPHASIS switch on the subsidiary control panel to the ON position.
When the signal to which emphasis has been applied is played back, it is automatically subjected to deemphasis processing.
Using the emphasis-deemphasis processing enables the dynamic range to be improved by reducing high-frequency noise.

4-1-2 Recording Time Code and User Bit Values

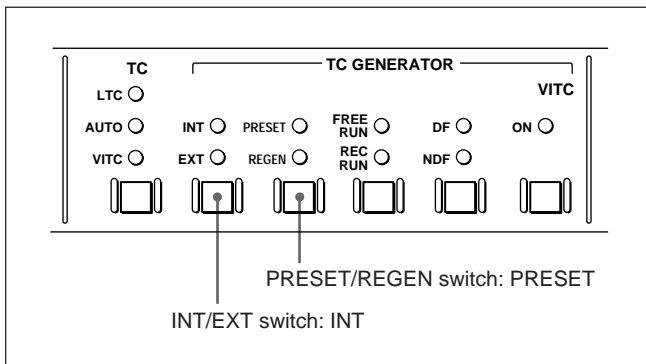There are three ways of recording time code, as follows:
- Setting an initial value, then recording the output of the internal time code generator
- Recording the output of the internal time code generator synchronized to an external time code generator
- Recording an external time code without modification

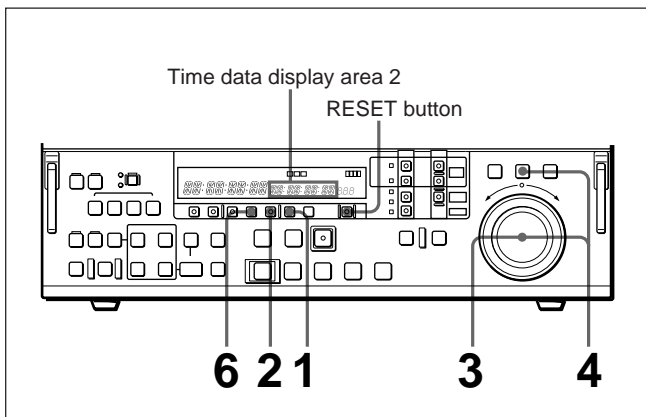## To set an initial value then record the time code

If necessary, change the settings in the time code setting section *(see page 2-6)*.
Set the INT/EXT switch to INT, and the PRESET/REGEN switch to PRESET.


```
        TC                    ── TC GENERATOR ──
     LTC ○                                                      VITC
   AUTO ○      INT ○   PRESET ○   FREE  ○    DF ○      ON ○
                                  RUN
   VITC ○      EXT ○   REGEN ○    REC  ○    NDF ○
                                  RUN
```

PRESET/REGEN switch: PRESET

INT/EXT switch: INT

To set an initial time code value
Use the following procedure.

Time data display area 2
RESET button

6 2 1   3   4

1 Set the CTL/TC/UB switch to TC.

2 Press the HOLD button.

The button lights, and in the time data display area 2, the first digit of the value (8 digits: hours, minutes, seconds, and frames) begins to flash.

To set all digits to zero
Press the RESET button.

3 Turn the search dial to select the digit to be changed.

Turning the search dial clockwise moves the

flashing digit position to the right, and turning the search dial counterclockwise moves the flashing digit position to the left.

4 Hold down the JOG button, then turn the search dial to change the value in the flashing digit position.

5 Until all the digits are set as required, repeat steps **3** and **4**.

6 Press the SET button.

The HOLD button goes off.
When the FREE RUN/REC RUN switch is set to FREE RUN, the time code value immediately starts advancing.

To set the time code value to the real time
With the switches in the time code setting section set as follows, carry out the procedure under the heading above, "To set an initial time code value." In steps **4** and **5**, set the value slightly after the current time, then carry out step **6** at the instant the real time catches up with the setting.
  INT/EXT switch: INT
  PRESET/REGEN switch: PRESET
  FREE RUN/REC RUN switch: FREE RUN
  DF/NDF switch: DF

Setting a user bit value
The user bit values recorded on the time code track provide for eight hexadecimal digits, which can be used to hold the date, time, event number or other information.
Use the following procedure.

1 Set the CTL/TC/UB switch to UB.

2 Carry out the procedure in steps **2** to **6** under the heading above, "To set an initial time code value." You can set each digit to any hexadecimal value, represented by 0 to 9, and A to F. Hexadecimal digits A to F appear in the seven-segment display as follows.

Digit	A	B	C	D	E	F
Display	A	b	C	d	E	F

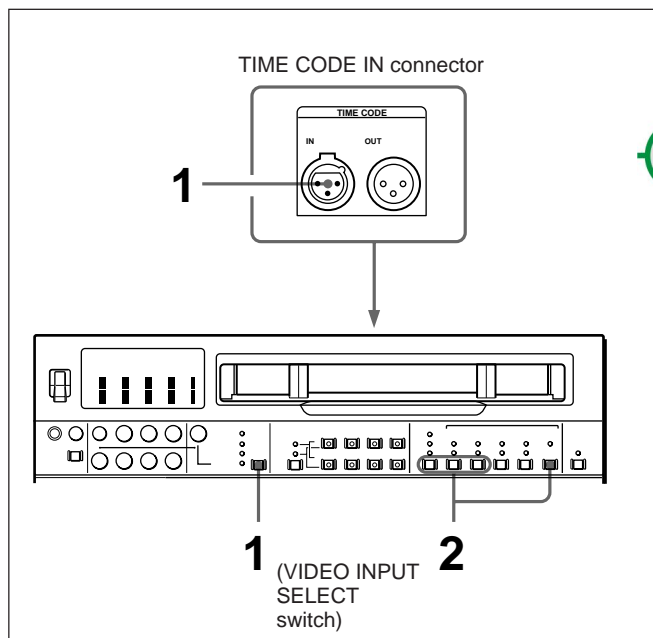## To synchronize the internal time code generator to an external signal

Use this method to synchronize the time code generators of a number of VTRs, or to record the playback time code signal from an external VTR without deterioration of the signal waveform.
In this case the settings of the FREE RUN/REC RUN switch and DF/NDF switch are ignored.
You can synchronize the internal time code generator to either of the following external time codes.
• The time code output (LTC) of an external time code generator or external VTR connected to the TIME CODE IN connector of the unit
• The time code (VITC) present in a video signal input to the unit

To synchronize the internal time code generator to an external signal, use the following procedure.

TIME CODE IN connector

1

1 (VIDEO INPUT SELECT switch) **2**

1 • When synchronizing to an external time code output (LTC)
Connect the time code output of the external time code generator or external VTR to the TIME CODE IN connector.
• When synchronizing to the time code (VITC) in an input video signal
With the VIDEO INPUT SELECT switch, select an input video signal containing VITC.

2 Set the switches as follows:
  INT/EXT switch: EXT
  PRESET/REGEN switch: REGEN
  VITC switch: ON (when recording VITC)
  TC switch: LTC or VITC according as you are synchronizing to LTC or VITC (If set to AUTO, LTC is used.)

This starts the internal time code generator running in synchronization with the external time code generator.
Once the internal time code generator is synchronized with the external time code generator, even if the external time code generator connection is removed, the internal time code generator continues to run.

To record an external time code without modification

Using this method has no effect on the running of the internal time code generator.
To record the playback time code from an external VTR, the method under the heading above, "To synchronize the internal time code generator to an external signal," is recommended.

1

2
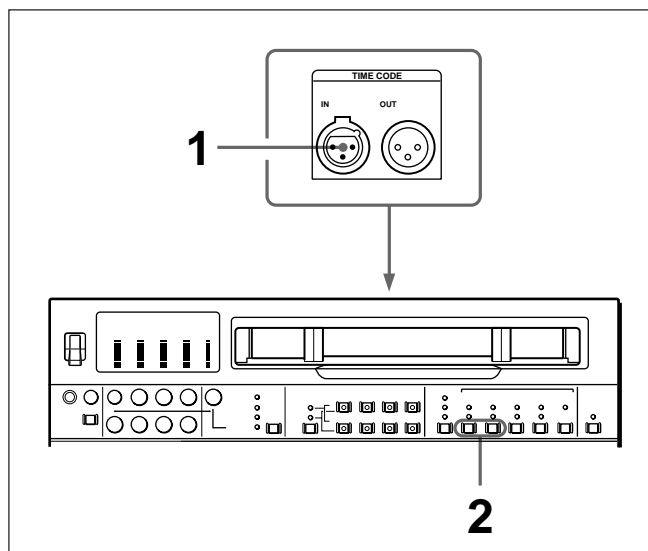
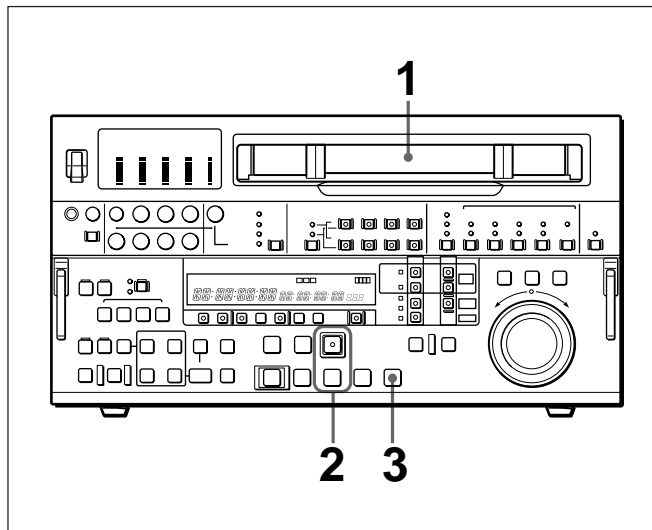**1** Connect the time code output of the external time code generator to the TIME CODE IN connector.

2 Set the switches as follows:
  INT/EXT switch: EXT
  PRESET/REGEN switch: PRESET

4-1-3 Recording Procedure

To record, use the following procedure.

1 When the device subject to operations is TAPE, insert a cassette.

For details, see the section "Inserting a cassette" (page 3-10).

2 Hold down the REC button, and press the PLAY button.

- When TAPE is the device subject to operations
  Recording starts, the servo locks, and the SERVO indicator lights.
- When MASTER is the device subject to operations
  Recording starts and the TOTAL/REMAIN time display changes with the progress of recording.

When PROGRAM is the device subject to operations, you cannot carry out recording by pressing the REC button and the PLAY button.

3 To stop recording, press the STOP button.

When MASTER is the device subject to operations, the hard disk stops after automatically returning to the position where recording was started.

If you record to the end of the tape
The tape is automatically rewound, and stops.

If you record to the end of the hard disk
The hard disk stops after automatically returning to the position where recording was started.
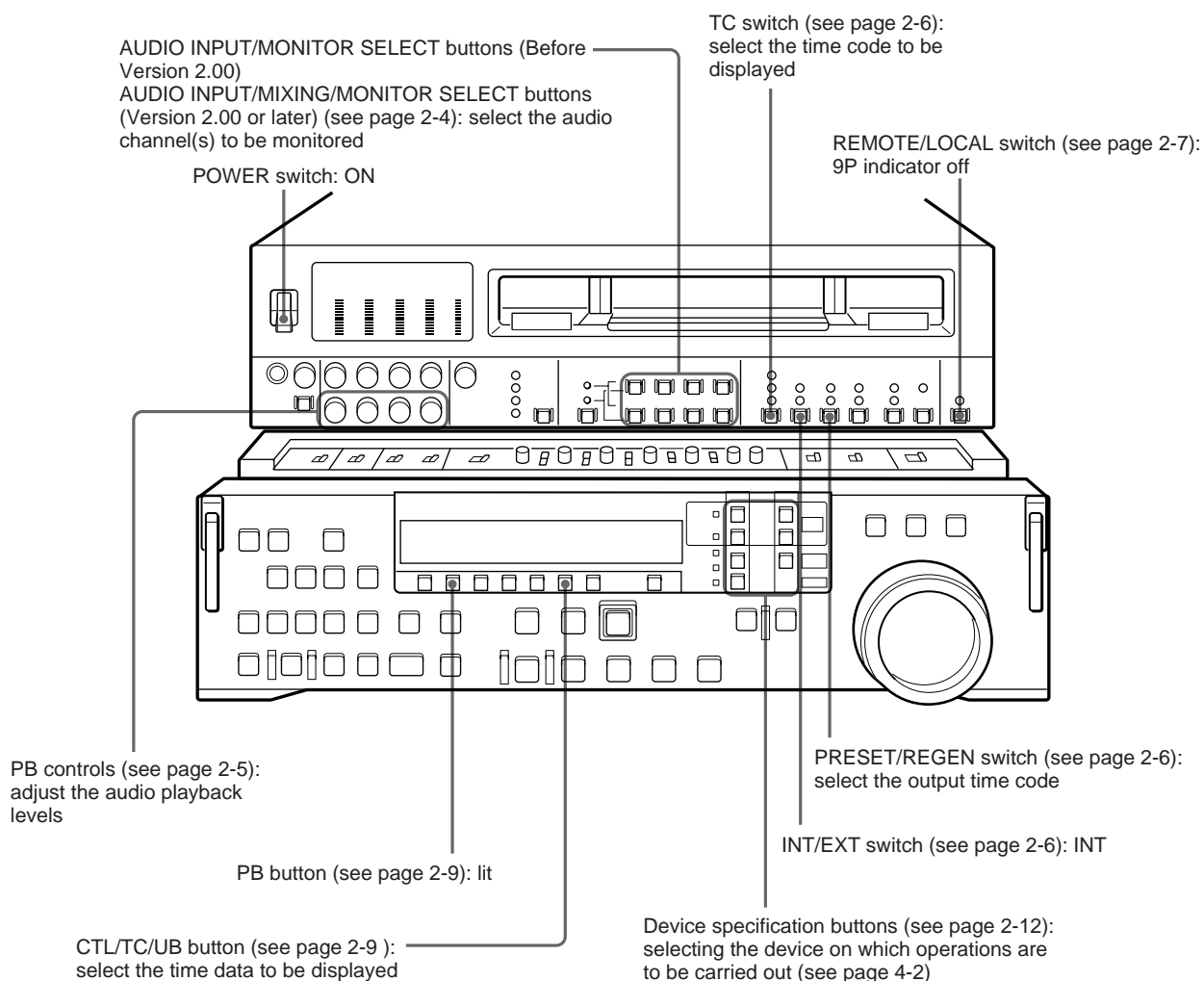
4-2 Playback

This section describes playback from the VTR and hard disk built into the unit.

4-2-1 Preparations for Playback

Switch settings

Before beginning playback, make any necessary switch settings.

For details of the settings of each of the switches, refer to the pages indicated in parenthesis.

AUDIO INPUT/MONITOR SELECT buttons (Before Version 2.00)
AUDIO INPUT/MIXING/MONITOR SELECT buttons (Version 2.00 or later) (see page 2-4): select the audio channel(s) to be monitored

POWER switch: ON

TC switch (see page 2-6): select the time code to be displayed

REMOTE/LOCAL switch (see page 2-7): 9P indicator off

PB controls (see page 2-5): adjust the audio playback levels

PB button (see page 2-9): lit

CTL/TC/UB button (see page 2-9): select the time data to be displayed

PRESET/REGEN switch (see page 2-6): select the output time code

INT/EXT switch (see page 2-6): INT

Device specification buttons (see page 2-12): selecting the device on which operations are to be carried out (see page 4-2)

Selecting the device on which operations are to be carried out

Carry out one of the following operations depending on which of the built-in VTR or hard disk is subject to operations.

- **•To carry out operations on the built-in VTR**
  Hold down the RECORDER button, and press the TAPE button in the RECORDER row, turning it on.
- **•To carry out operations on the hard disk**
  Hold down the RECORDER button, and press the DISK PROGRAM or DISK MASTER button in the RECORDER row, turning it on.
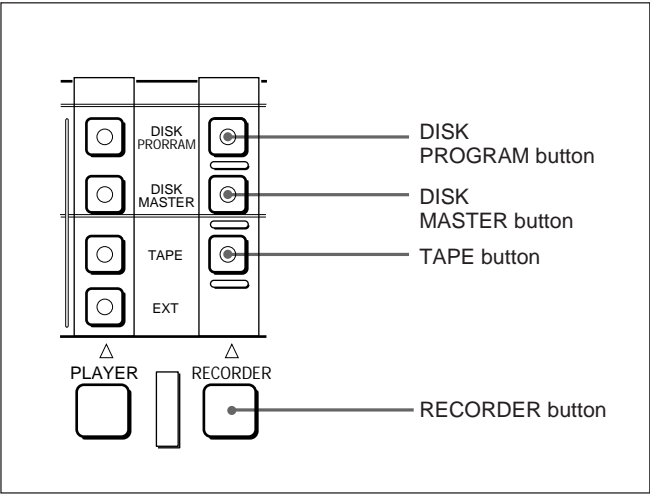
Time data selection

Displayed time data
Use the CTL/TC/UB button to select one of CTL (control), time code, and user bit values. When you select time code, the data displayed is determined by the setting (LTC/AUTO/VITC) of the TC switch as follows.

TC switch setting	Displayed data	
	When playing back tape	When playing back hard disk
LTC	LTC recorded on tape	LTC recorded on hard disk
VITC	VITC recorded on tape	VITC recorded on hard disk
AUTO	LTC or VITC (automatically switched)	Virtual file time code[a]

a) • When playing back DISK MASTER: Continuous time code beginning with the time code value of the hard disk position where the recorded file starts.
   • When playing back DISK PROGRAM: Continuous time code beginning with time code value 0 assigned to the beginning of the program.

Output time code
The settings of the PRESET/REGEN switch and extended menu item 606 determine whether the time code output from the TIME CODE OUT connector is the time code read by the internal time code reader (REGEN), or the playback time code (PRESET).

For details of the PRESET/REGEN switch settings, see page 2-6.

Chapter 4   Recording and Playback

4-2-2 Playback/Feed Play Procedures

This section describes the following types of playback which the unit can carry out:

• Normal playback
  Playback at normal (×1) speed
• Playback in jog mode
  Variable speed playback, with the speed determined by the speed of turning the search dial
• Playback in shuttle mode
  Variable speed playback, with the speed determined by the angular position of the search dial
• Playback in variable mode
  Variable speed playback, with the speed finely determined by the angular position of the search dial
• Playback using the capstan override function (when using the unit as a VTR)
  The playback speed is adjusted temporarily according to the angular position of the search dial, to align the playback phase with that of another VTR.
• Playback in feed mode
  Playback at any speed selected in the range of 0.1 to 4 times normal speed. High-speed data transfer through the SDDI DIGITAL OUTPUT connectors is possible.

Normal playback

When the device on which operations are being carried out is TAPE, insert a cassette.

For details of how to insert a cassette, see Section 3-5-2, "Inserting and Ejecting Cassettes" (page 3-10).
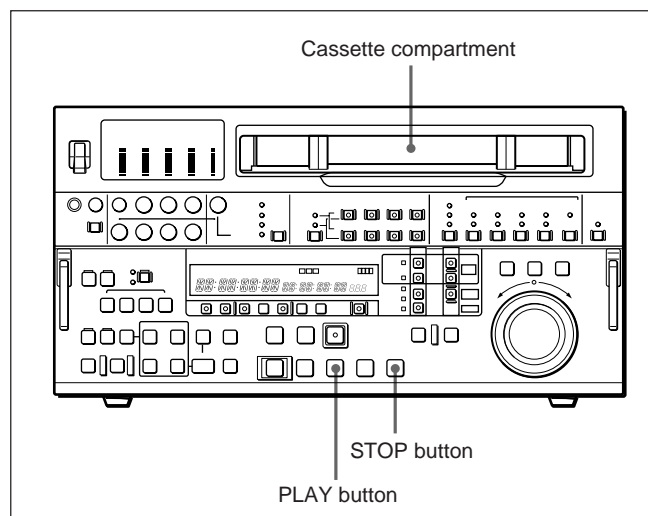
To start playback
Press the PLAY button.
Playback starts, the servo locks, and the SERVO indicator lights.

To stop playback
Press the STOP button.

Cassette compartment

STOP button
PLAY button

If you play back to the end of the tape
The tape is automatically rewound, and stops.

### When using the Dolby noise reduction system
When using an analog Betacam cassette, you can use Dolby C noise reduction for audio playback.
To activate the Dolby noise reduction system, set the DOLBY NR switch on the subsidiary control panel to ON.

Playback in jog mode

In jog mode, you can control the speed of playback by the speed of turning the search dial. The playback speed range is ±1 times normal speed.
To carry out playback in jog mode, use the following procedure.

1 1,2,3
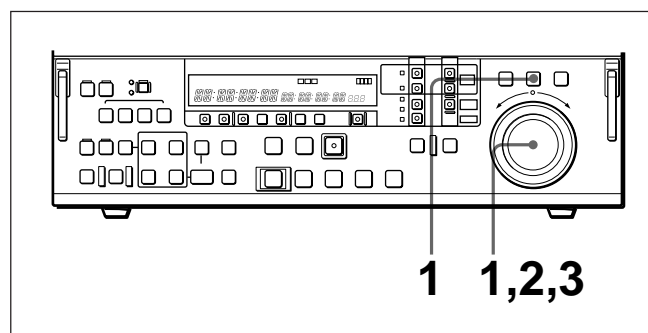
1 Press the JOG button or search dial so that the JOG button is lit.

Pressing the search dial toggles between jog mode and shuttle mode.

2 Turn the search dial in the desired direction, at the speed corresponding to the desired playback speed.

Playback in jog mode starts.

3 To stop playback in jog mode, stop turning the search dial.

The search dial function to toggle between jog mode and shuttle mode every time being pressed can be prohibited by changing the setting of extended menu item 101.
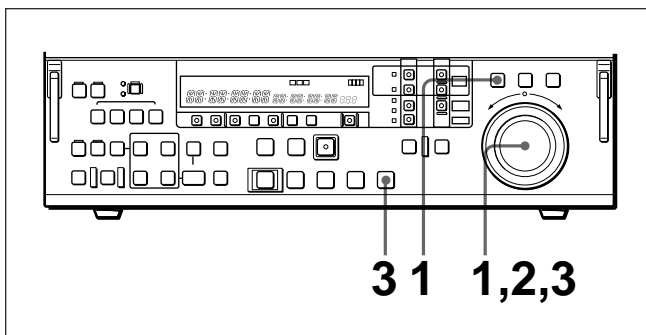
Playback in shuttle mode

In shuttle mode, you can control the speed of playback by the angular position of the search dial. The range of playback speed is as follows:
• Using a Betacam SX tape: ±50 times
• Using an analog Betacam tape: ±35 times (DNW-A100/A50/A45) ±42 times (DNW-A100P/A50P/A45P)
• Using the hard disk: ±100 times
There are detents on the search dial at the still position and at ±10 times normal speed.
To carry out playback in shuttle mode, use the following procedure.

3 1   1,2,3

1 Press the SHUTTLE button or search dial so that the SHUTTLE button is lit.

Pressing the search dial toggles between jog mode and shuttle mode.

2 Turn the search dial to the desired angle corresponding to the desired playback speed.

Playback in shuttle mode starts.

3 To stop playback in shuttle mode, return the search dial to the center position, or press the STOP button.

The search dial function to toggle between jog mode and shuttle mode every time being pressed can be prohibited by changing the setting of extended menu item 101.

To return to normal-speed playback
Press the PLAY button.

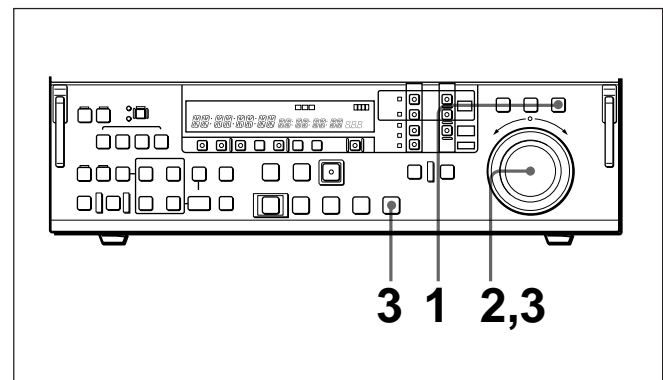### To alternate between normal-speed playback and shuttle mode playback
Set the search dial to the position corresponding to the desired shuttle playback speed, then switch between normal-speed playback and shuttle playback by pressing the PLAY and SHUTTLE buttons alternately. For intermittent shuttle mode playback, press the STOP and SHUTTLE buttons alternately.

Playback in variable mode

In variable mode, you can finely control (47 steps) the speed of playback in the range of ±1 times normal speed.
There are detents on the search dial at the still position and at ±1 times normal speed.
To carry out playback in variable mode, use the following procedure.

3 1   2,3

1 Press the VAR button, turning it on.

2 Turn the search dial to the desired angle corresponding to the desired playback speed.

Playback in variable mode starts.

3 To stop playback in variable mode, return the search dial to the center position, or press the STOP button.

Chapter 4   Recording and Playback
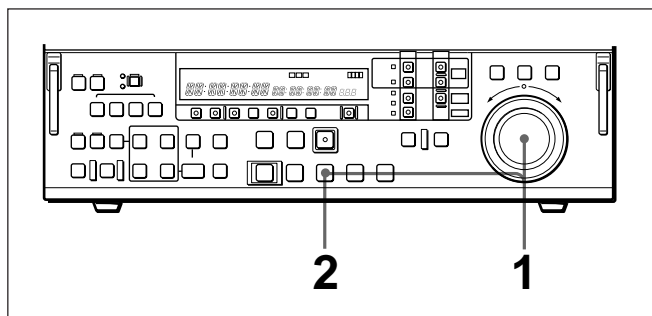
To return to normal-speed playback
Press the PLAY button.

To alternate between normal-speed playback and variable mode playback
Set the search dial to the position corresponding to the desired variable playback speed, then switch between normal-speed playback and variable playback by pressing the PLAY and VAR buttons alternately. For intermittent variable mode playback, press the STOP and VAR buttons alternately.

Playback using the capstan override function

When using the unit as a VTR, you can use the capstan override function to adjust the playback speed temporarily. The range of speed adjustment is ±15% in steps of 1%. This function is convenient for playback phase synchronization with another VTR playing back the same program.

1 Hold down the PLAY button, and turn the search dial in the desired direction to adjust the playback speed.

The SERVO indicator goes off.

2 When the adjustment is completed, release the PLAY button.

The tape transport returns to normal speed, and the SERVO indicator comes on again.

Carrying out playback in feed mode

When the recorder is TAPE (using a Betacam SX tape) or MASTER, and the player is EXT, you can use feed mode to play back at any speed from 0.1 to 4 times normal. You can select the playback speed in steps of 0.1 times normal speed. The playback output is output from the SDDI DIGITAL OUTPUT connectors. This therefore allows high-speed dubbing to another device equipped with an SDDI input connector.

Use the following procedure to carry out feed mode playback.
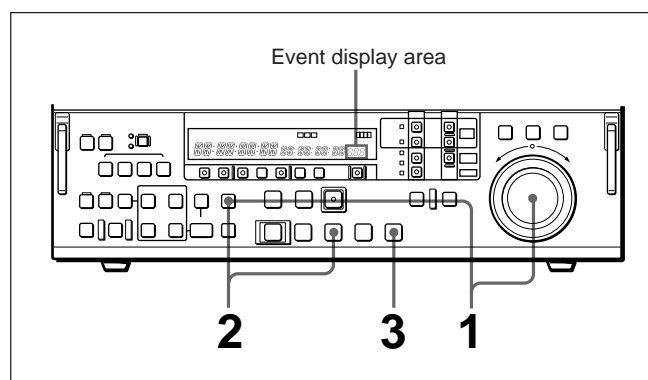
Event display area

1 Hold down the FEED button, and turn the search dial to set the playback speed.

While you hold down the FEED button, the playback speed setting for feed mode (initially the maximum setting) appears in the event display area as a percentage of normal speed. (For example, four times normal speed is shown as "400".)

2 Hold down the FEED button, and press the PLAY button.

Both buttons light, and playback in feed mode starts.

3 Where you wish to stop playback, press the STOP button.

Playback stops.

Feed mode playback when the device on which operations are being carried out is PROGRAM

In general, playback is limited to normal speed, but when in the disk file management menu simple edit mode and GOP SW editing are selected, feed mode playback is possible up to a maximum of twice normal speed.

Notes

• In simple edit mode, insert editing is not possible for the video and audio channels individually.
• For GOP SW editing, the editing accuracy is 1 frame.

For details of disk file management menu operations, see Section 7-4, "Disk File Management Menu" (page 7-25).

5-1 Overview

For editing using the built-in hard disk, you can carry out editing between the built-in VTR or an external VTR and the hard disk, or editing on the hard disk alone.
In either case, editing is carried out with PROGRAM specified as the recorder device.
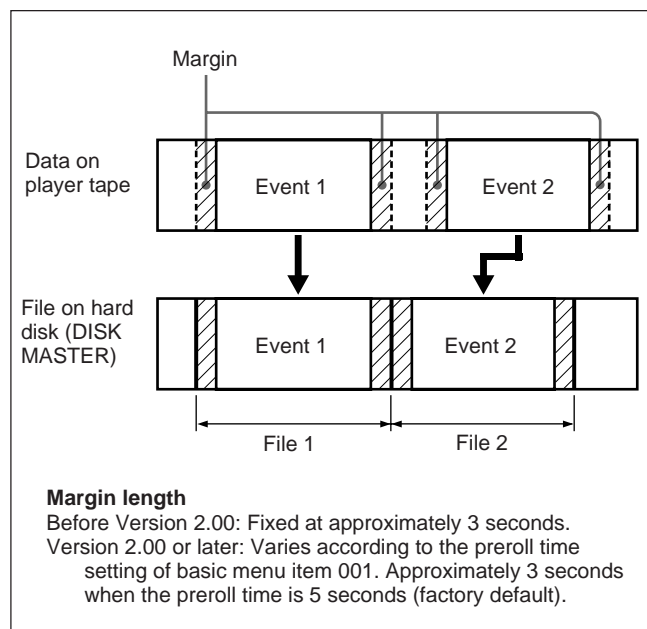
In this system, "PROGRAM" refers to editing data which determines the sequence in which video and audio data recorded on the hard disk is to be played back. On the hard disk, the video and audio data itself is managed in a notional device called "MASTER". If MASTER is specified as the recorder device, it is possible to record video and audio data, but not to carry out editing.

Note

After carrying out operations on this unit using the hard disk, before powering the unit off be sure to press the EJECT button to close the files on the hard disk. Powering off the unit with files left open may result in a loss of system data from the hard disk.

Background information

A section of source material selected by an editing operation carried out with PROGRAM specified as the recorder is stored on MASTER as what is termed an "event". A margin before and after the edit IN and OUT points is added to the event, and the resulting data is then managed on MASTER as a file.

Margin length
Before Version 2.00: Fixed at approximately 3 seconds.
Version 2.00 or later: Varies according to the preroll time setting of basic menu item 001. Approximately 3 seconds when the preroll time is 5 seconds (factory default).

The margin is used when modifying edit points, for example, but in general it is not necessary to be aware of the margin during editing operations.

5-2 Basic Editing Operations

5-2-1 Control Modes

You can use the following control modes for carrying out editing with this unit.

• **PLAYER mode**
The state in which the PLAYER button has been pressed and turned on (and the RECORDER button is off). You can control the player from the control panel of this unit.

• **RECORDER mode**
The state in which the RECORDER button has been pressed and turned on (and the PLAYER button is off). You can control the recorder from the control panel of this unit.

• **SELF mode**
The state in which both the PLAYER button and RECORDER button are off. In this state, you can control the device specified as the recorder.
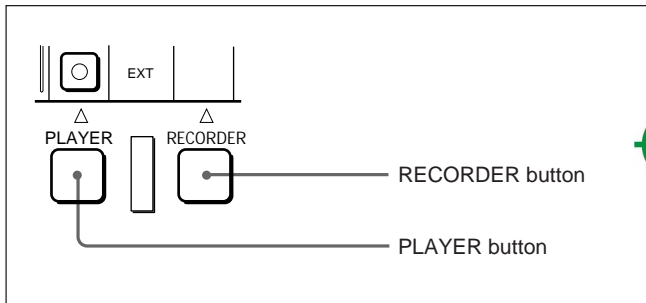
5-2-2 Sequence of Editing Operations

The following flowchart outlines the sequence of basic editing operations.

Specifying the devices on which operations are being carried out (page 5-4)

↓

Selecting the editing mode (page 5-4)

↓

Setting the recorder and player edit points (page 5-7)

↓

Previewing the edit segments (page 5-10)

↓

Modifying edit points as necessary (page 5-15)
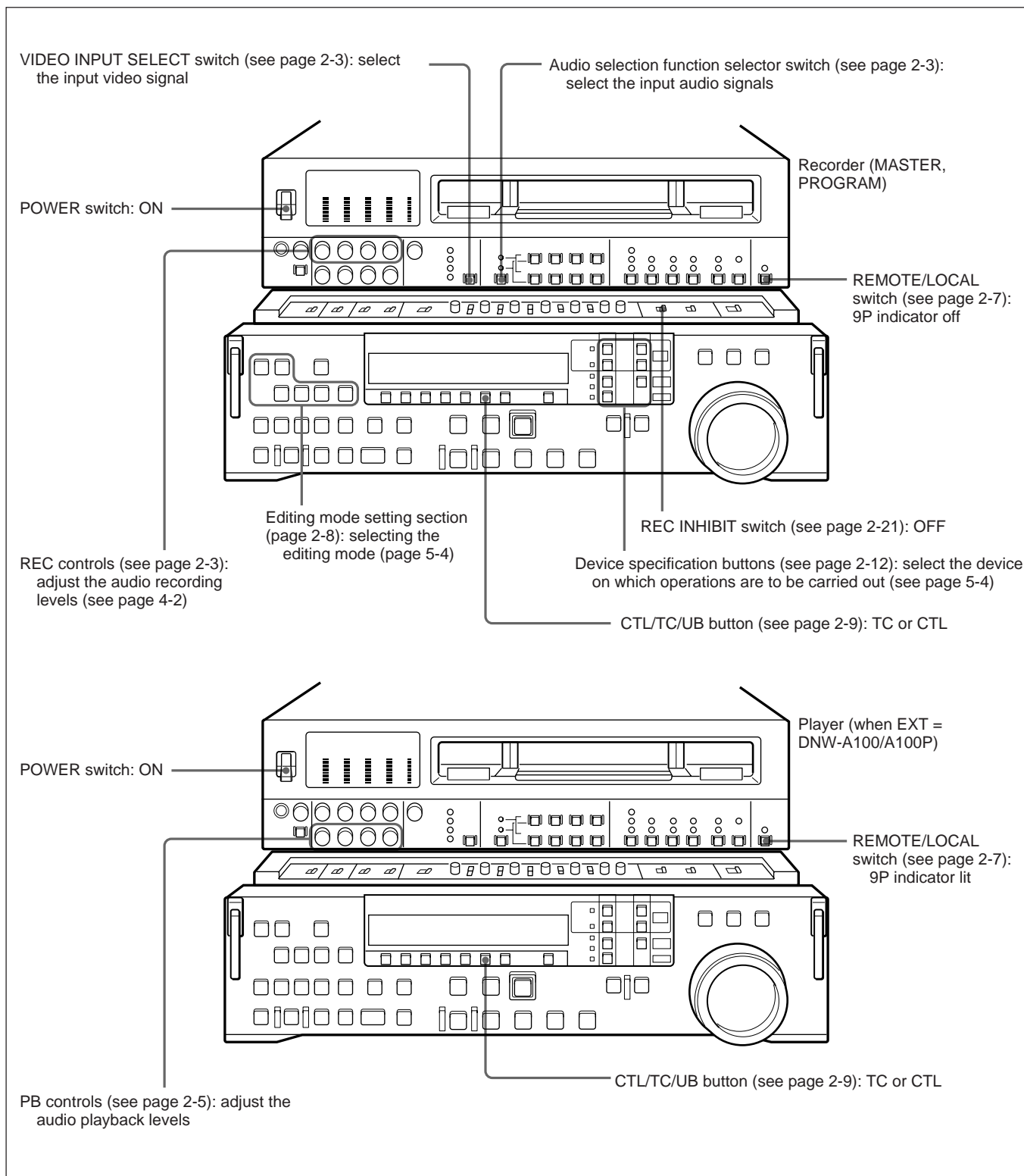
↓

Carrying out the edit (page 5-15)

↓

Checking the editing results as necessary (page 5-16)

Chapter 5 Editing Using the Built-in Hard Disk

5-2-3 Switch Settings

Before beginning editing, set the switches as follows.

VIDEO INPUT SELECT switch (see page 2-3): select
    the input video signal

Audio selection function selector switch (see page 2-3):
    select the input audio signals

Recorder (MASTER, PROGRAM)

POWER switch: ON

REMOTE/LOCAL switch (see page 2-7): 9P indicator off

Editing mode setting section (page 2-8): selecting the editing mode (page 5-4)

REC INHIBIT switch (see page 2-21): OFF

REC controls (see page 2-3): adjust the audio recording levels (see page 4-2)

Device specification buttons (see page 2-12): select the device on which operations are to be carried out (see page 5-4)

CTL/TC/UB button (see page 2-9): TC or CTL

Player (when EXT = DNW-A100/A100P)

POWER switch: ON

REMOTE/LOCAL switch (see page 2-7): 9P indicator lit

CTL/TC/UB button (see page 2-9): TC or CTL

PB controls (see page 2-5): adjust the audio playback levels

5-2-4 Specifying Devices

Devices which can be specified

You can specify any of the following four devices as recorder or player.

| Device to be specified	Button to be pressed
Built-in VTR	TAPE
Built-in hard disk (for recording)	DISK MASTER
Built-in hard disk (for editing)	DISK PROGRAM
External VTR connected to the REMOTE-IN(9P) connector	EXT

Note

The following device specifications are not possible:
• Specifying EXT (external VTR) as the recorder
• Specifying PROGRAM as the player and MASTER as the recorder

For details of the operations involved in editing with an external VTR as the player and the built-in VTR as the recorder, see Chapter 6, "Editing Without Using the Built-in Hard Disk (Two-VTR Editing)."

To make a device specification

To specify the recorder, hold down the RECORDER button, and to specify the player, hold down the PLAYER button, then press the TAPE button, DISK MASTER button, DISK PROGRAM button, or EXT button according to the device you wish to specify. The corresponding device indicator in the RECORDER or PLAYER column lights.
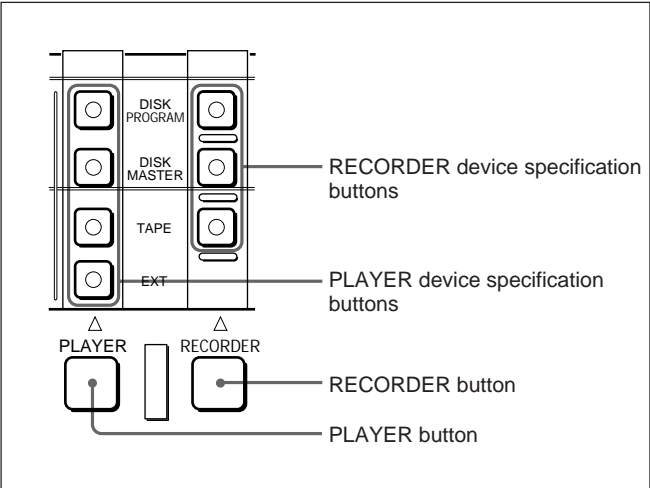
When PROGRAM is specified as the recorder, check the setting (INS or OVL) of the EDITING MODE button.

For details, see the section "Nonlinear editing and the setting of the EDITING MODE button" (page 5-6).

If there is a contradiction in the device specifications

If for example you specify TAPE for both PLAYER and RECORDER, the device indicators flash. In this case, make the required correct device setting.

5-2-5 Selecting the Editing Mode

Editing modes which can be selected

The editing modes which can be selected depend on the device specified as the recorder, as shown in the following table.

Recorder	Selectable editing modes
TAPE	Assemble editing / all-channel insert editing (ASSEMBLE/ALL)
MASTER	Assemble editing / all-channel insert editing (ASSEMBLE/ALL) When MASTER is the recorder, only appended recording of video and audio material is possible. It is not possible to specify recorder IN and OUT points.
PROGRAM	• In simple edit mode (when the SIMPLE EDIT indicator is lit): Assemble editing / all-channel insert editing (ASSEMBLE/ALL) • In full edit mode (when the FULL EDIT indicator is lit): Insert editing for separate channels (VIDEO, and AUDIO CH-1 to AUDIO CH-4) It is possible to carry out separate editing for each of the video, and audio 1 to audio 4 channels. *The selection of simple edit mode or full edit mode is made in the disk file management menu. For details, see page 5-6.* When PROGRAM is specified as the recorder, carry out the EDITING MODE button setting (INS or OVL). *For details, see the section, "Nonlinear editing and the setting of the EDITING MODE button" (page 5-6).*

For details of the concepts of assemble editing and insert editing, see the section "Assemble editing and insert editing" (page 5-5).

To select the editing mode

To select the editing mode, first press any button in the assemble assemble/insert editing mode selection section which is lit, turning it off, then carry out one of the following operations.

Editing mode to be selected	Operation
Assemble editing	Press the ASSEMBLE/ALL button, turning it on.
All-channel insert editing	
Separate channel insert editing	Press any of the VIDEO, and AUDIO CH-1 to AUDIO CH-4 buttons for the corresponding channel, turning it on.

Assemble editing and insert editing

Assemble editing (with TAPE as the recorder)

The material from the player is recorded, appended after the existing recorded material on the recorder. The video and audio information, and the time code and CTL signal (if TAPE is the recorder) are all newly recorded together.

Concept of assemble editing
Video and audio material on player
Video and audio material on recorder
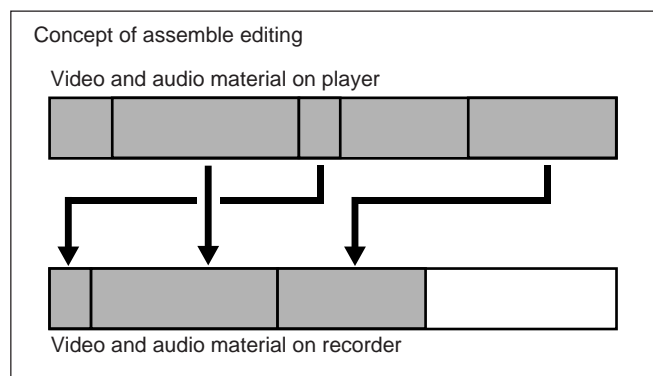
If you record video information at an intermediate point in an existing recording, at the end of the inserted recording the picture continuity will be lost.
The CTL signal must be recorded on the tape for at least the preroll time before the recorder IN point.
If time code is already recorded before the editing start point, time code will be recorded continuously from the existing time code.
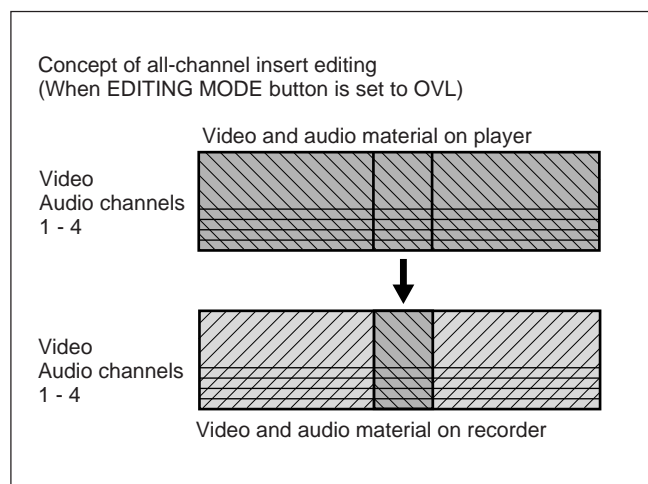
Insert editing (with PROGRAM as the recorder)

The material from the player is inserted into existing recorded material on the recorder. This can be done with no loss of picture continuity (picture breakup) at the joins.

• With all-channel insert editing (ASSEMBLE/ALL), the video and all audio channels are recorded together.

In this mode, it is also possible to specify the end of the recorded video as the recorder IN point for the next event to be recorded so that the next event can be added directly to the existing video.
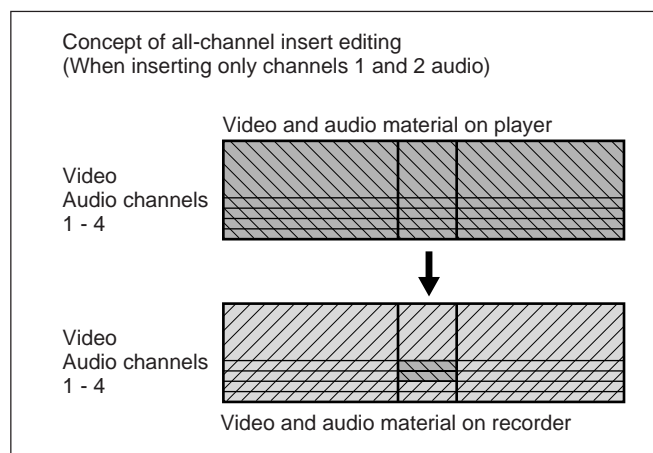
When you specify an editing section (event) on the source tape and carry out editing with PROGRAM specified as the recorder, the event is recorded on the hard disk (MASTER). At this time, a margin before and after the IN and OUT points of the event is added automatically. The resulting data comprising the event and the margins is then managed on MASTER as a file.

Concept of all-channel insert editing
(When EDITING MODE button is set to OVL)
Video and audio material on player
Video
Audio channels
1 - 4
Video
Audio channels
1 - 4
Video and audio material on recorder

5-2 Basic Editing Operations

• With separate channel insert editing, you can specify independent IN and OUT points for each of the video channel and audio channels 1 to 4.
The setting of the EDITING MODE button is ignored, and the insert editing is always carried out in OVL mode.

Concept of all-channel insert editing
(When inserting only channels 1 and 2 audio)

Video and audio material on player

Video Audio channels 1 - 4

Video Audio channels 1 - 4

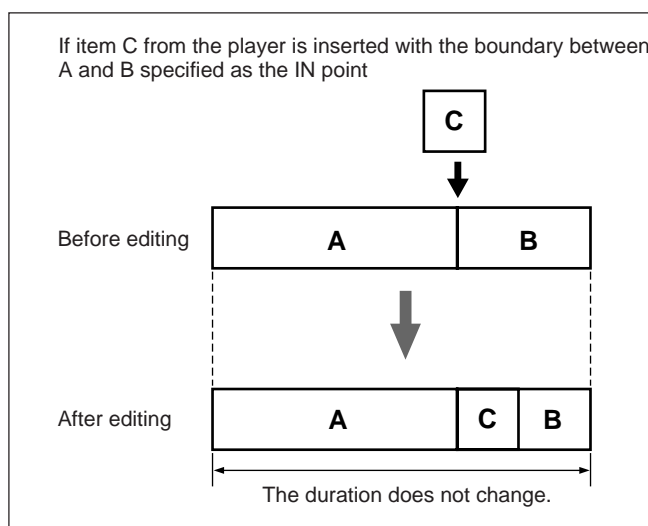Video and audio material on recorder

Nonlinear editing and the setting of the EDITING MODE button

Nonlinear editing is carried out when PROGRAM is specified as the recorder. In this case there is no physical rearrangement of the video and audio material. Rather, a list is made of the data to be recalled from the hard disk, since data can be recalled from the hard disk with instant access in any order. For the purposes of editing operations, however, it is not necessary to be aware of this difference in the way the created program is stored.

For nonlinear insert editing, the effect of editing operations depends on the setting of the EDITING MODE button as follows. Make the appropriate setting for the type of editing you wish to carry out.
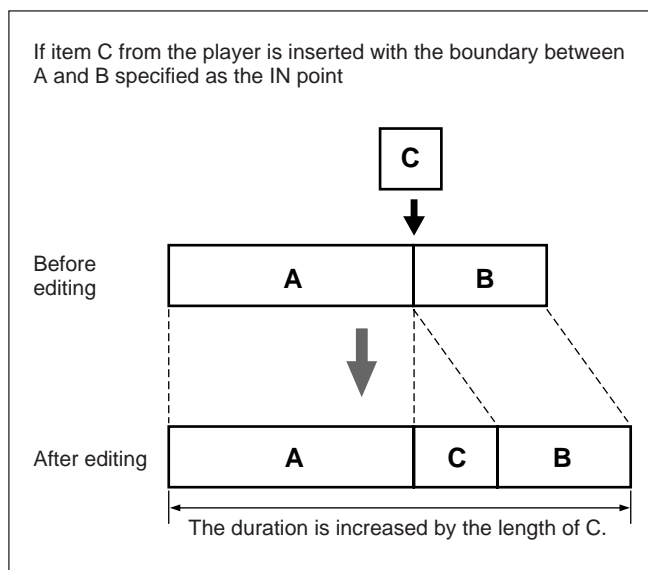
When the EDITING MODE button is set to OVL (overlay)

Material in the editing section on the recorder is overwritten by insert editing.

If item C from the player is inserted with the boundary between A and B specified as the IN point

Before editing

| A | B |

After editing

| A | C | B |

The duration does not change.

When the EDITING MODE button is set to INS (insert)

Material after the edit point on the recorder is shifted by insert editing.

If item C from the player is inserted with the boundary between A and B specified as the IN point

Before editing

| A | B |

After editing

| A | C | B |

The duration is increased by the length of C.

Necessary conditions for selecting the INS mode

It is only possible to select the INS mode with the EDITING MODE button when all the following conditions hold:

• PROGRAM is selected as the recorder.
• ASSEMBLE/ALL is selected as the editing mode.
• The recorder IN point has been set and the OUT point has not been set.
• The unit is not in SELF mode (in SELF mode, the PLAYER and RECORDER buttons are not lit).

If these conditions do not all hold, the setting of the EDITING MODE button is ignored, and nonlinear editing is always carried out in OVL mode.
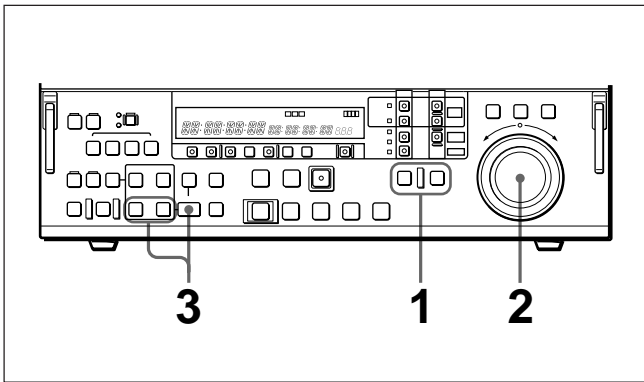
5-2-6 Setting Edit Points

Set the edit points for editing between the recorder and player.

To set an edit point

Note

When MASTER is specified as the player, it is not possible to specify a pair of IN and OUT points over different files.

3   **1**   **2**

1 Press the RECORDER button or PLAYER button to select the device on which you will set the edit point.

The button which you have pressed lights.

2 Turn the search dial in jog or shuttle mode, and cue up to the required edit point.

For details of playback in jog or shuttle mode, see the sections "Playback in jog mode" (page 4-8) and "Playback in shuttle mode" (page 4-9).

3 At the point at which you wish to set the IN point or OUT point, hold down the ENTRY button and press the IN button or OUT button as the case may be.

When the IN point or OUT point is set, the IN button or OUT button respectively lights.

Note

When the hard disk (MASTER or PROGRAM) is specified as the player or recorder, be sure to set the IN and OUT points so that the duration between them is at least 16 frames.

4 Repeat steps **1** to **3** until all the necessary edit points are set.

When the IN points on both the recorder and player are set, the PREVIEW/REVIEW button and AUTO EDIT button flash, and it becomes possible to carry out a preview or editing operation.

However, when editing an event for the first time for the purpose of creating a program, it is not necessary to specify the recorder IN point.

Automatic setting of edit points

Editing requires four edit points: the IN and OUT points on both the recorder and player. However, once any three of these points are defined, the last point is set automatically. For example, if you set the recorder IN and OUT points, and the player IN point, the player OUT point is set automatically.

Note

In the following cases, the DELETE button or either the IN button or the OUT button begins to flash and you cannot carry out editing:

When the DELETE button flashes
• The OUT point is before the IN point.
• All four of the recorder IN and OUT points and the player IN and OUT points have been set.
• MASTER is selected as the player and the player IN and OUT points are in different files.
• The following conditions regarding event durations are not met.
  (Before Version 2.00): Every event has at least 16 frames.
  (Version 2.00 or later): Every event has at least 4 frames and any two adjacent events have a total of 32 frames or more.

Use the DELETE button to delete a redundant edit point, or set the edit points correctly.

For details of deleting edit points, see Section 5-2-7, "Modifying and Deleting Edit Points" (page 5-8).

Chapter 5 Editing Using the Built-in Hard Disk

To display the time value for an edit point

You can display the time value for an edit point in the device specification and display section *(see page 2-10)*. The IN point appears in time data display area 1, and the OUT point in time data display area 2.

Time data display area 1

Time data display area 2

2   **1**
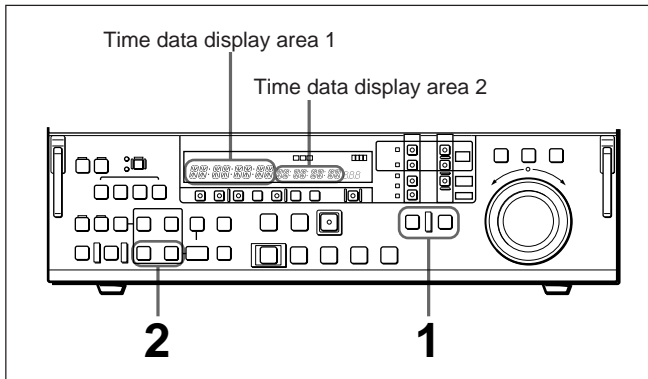
1 Press the RECORDER button or PLAYER button to select the device on which you wish to check the edit point.

The button you have pressed lights.

2 Hold down the IN button or OUT button according to the edit point you wish to check.

While you hold down the button, the IN indicator or OUT indicator of time data display area 1 or 2 lights, and the time value of the edit point is displayed.

To display the duration between two edit points

You can display the duration between two edit points in the following three cases, in the device specification and display section *(see page 2-10)*.
• When both the IN point and OUT point are set: the duration of the segment between the two points
• When one only of the IN point and OUT point is set: the duration of the segment between the point which is set and the current position
• When neither of the IN point and OUT point is set: the duration of the previous editing segment
The duration is displayed across time data display areas 1 and 2, thus: "DURATION 00:01:10:00".
To display a duration, use the following procedure.

1 Press the RECORDER button or PLAYER button to select the device on which you wish to check the duration.

The button you have pressed lights.

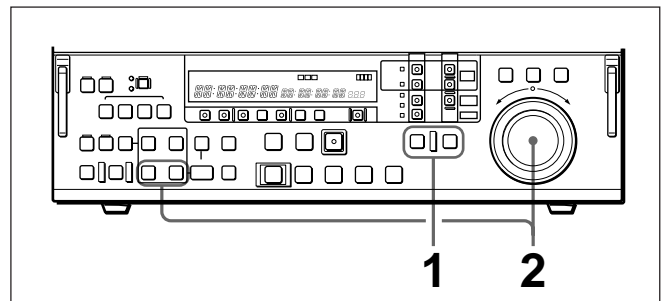**2** Hold down both the IN button and OUT button.

While you hold down the buttons, the duration is displayed across time data display areas 1 and 2.

5-2-7 Modifying and Deleting Edit Points

If the edit points are not set correctly, for example if an OUT point is before a corresponding IN point, the DELETE button flashes, and it is not possible to carry out a preview or editing operation. In this case, either modify the erroneous edit point, or first delete it and then enter it correctly.

Modifying an edit point

To modify an edit point, use the following procedure.

1   **2**

1 Press the RECORDER button or PLAYER button to select the device on which you wish to modify the edit point.

The button you have pressed lights.

2 Hold down the IN button or OUT button according to the edit point you wish to modify, and turn the search dial as follows:
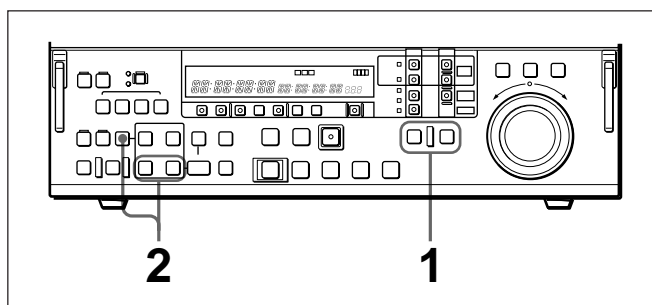• To advance the edit point: the forward direction
• To delay the edit point: the reverse direction

The time value for the IN or OUT point displayed in time data display area 1 or 2 increases or decreases according to the direction in which you turn the search dial.

3 When the modification is completed, release the button you pressed in step **2**.

Deleting an edit point

To delete an edit point, use the following procedure. You can use the same procedure whether or not the DELETE button is flashing.

1 Press the RECORDER button or PLAYER button to select the device on which you wish to delete the edit point.

The button you have pressed lights.

2 Hold down the DELETE button and press the lit IN button or OUT button according to the edit point you wish to delete.

The IN point or OUT point is deleted according to which button you pressed, and the DELETE button goes off.

To restore a deleted edit point
To restore an edit point immediately after deleting it, hold down the IN button or OUT button according to the edit point you wish to restore, and press the RECALL button.

5-2-8 Cue-up to Edit Points and Preroll

To preroll to an edit IN point or cue up to any edit point, use the following procedure.

1 Press the RECORDER button or PLAYER button to select the device on which you wish to operate.

The button you have pressed lights.

2 • **To cue up to an edit point**
Hold down the IN button or OUT button according to the edit point to which you wish to cue up, and press the PREROLL button.

This cues up to the edit point you have selected.
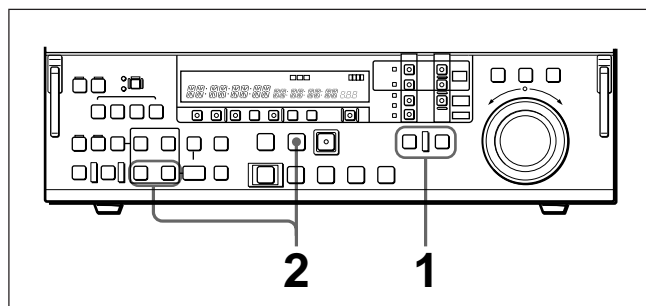
• **To preroll**
Press the PREROLL button.
This cues up to a position 5 seconds before the edit IN point, and stops.

To change the preroll time
The factory default setting for the preroll time is 5 seconds, but basic menu item 001 allows you to change this to any value from 0 to 30 seconds. If you change the preroll time, make sure that the setting is not longer than the recording length before the edit IN point.
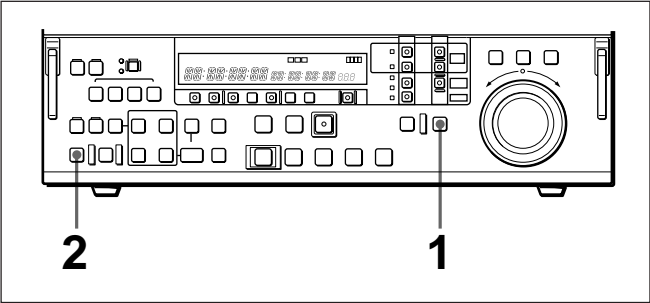Note that for automatic editing, the preroll time setting on the recorder takes precedence.

For details of the basic menu, see Section 7-2, "Basic Menu" (page 7-1).

5-2-9 Preview

When you have set the edit points, the PREVIEW/
REVIEW button flashes, indicating that you can carry
out a preview.
To carry out a preview, use the following procedure.

1 Press the RECORDER button, turning it on.

2 Press the PREVIEW/REVIEW button.

The PREVIEW/REVIEW button changes from
flashing to continuously lit, and the preview is
carried out.
At the end of the preview, the PREVIEW/
REVIEW button goes off.

To stop the preview
Press the STOP button.

To return to the IN point or OUT point
Press the PREROLL button and the IN button or OUT
button simultaneously.

To return to the preroll point
Press the PREROLL button.

After the preview, make adjustments to the edit points,
then repeat the preview as necessary.

*For details of how to modify or delete edit points, see
Section 5-2-7, "Modifying and Deleting Edit Points" (page
5-8).*

Monitor output

During previews and editing, the monitor output video
depends on the settings shown in the following table.

Monitor output video during previews and editing

Device specification		During previews			During editing
Player	Recorder	RECORDER mode	PLAYER mode	SELF mode	
EXT[a]	TAPE[b]	R-P-P	B-P-B	R-P-P	R-P-P[d]
	MASTER	B-P-B	B-P-B	Editing not possible	P-P-P
	PROGRAM	R-P-P	B-P-B	P-P-P	P-P-P[e]
TAPE	TAPE	Editing not possible			
	MASTER	B-P-B	B-P-B	–	P-P-P
	PROGRAM	R-B-B	B-P-B	–	P-P-P[f]
PRO-GRAM	TAPE[b]	R-B-B	B-P-B	–	P-P-P
	MASTER	Editing not possible			
	PROGRAM	R-P-R	- -P-B	–	[c]
MASTER	TAPE[b]	R-B-B	B-P-B	–	P-P-P
	MASTER	Editing not possible			
	PROGRAM	R-P-R	- -P-B	–	[c]

a) Only when the external input is other than SDDI.
b) Assemble mode editing only.
c) When an OUT point is set, program information is saved
   to the hard disk but there is no output to the monitor.
   If you execute an edit before setting the OUT point and
   set the OUT point during the edit, the editing mode
   becomes R-P- - (no postroll).
d) Monitor output switching from R to P will not exactly
   represent the results of editing.
e) When audio editing only is performed in SELF mode,
   monitor output will be R-P-R.
f) When audio editing only is performed on Version 2.00
   or later units, monitor output will be R-P-R.

	IN point ▼		OUT point ▼	
	Preroll	Edit segment	Postroll	
R-P-R	Recorder playback	Player playback	Recorder playback	
B-P-B	Black image (mute)	Player playback	Black image (mute)	
R-B-B	Recorder playback	Black image (mute)	Black image (mute)	
R-P-P	Recorder Playback	Player playback	Player playback	
P-P-P	Player playback	Player playback	Player playback	
- - P-B	No preroll is made.	Player playback	Black image (mute)	

5-2-10 Carrying Out Editing

When you have set the edit points, press the AUTO EDIT button when it is flashing.
The AUTO EDIT button changes from flashing to continuously lit, and the editing operation begins.
At the end of the editing operation, the AUTO EDIT button goes off.

### Carrying out high-speed editing in feed mode

When the built-in VTR is specified as the player (using Betacam SX tape) and the built-in hard disk (MASTER or PROGRAM) is specified as the recorder, you can carry out high-speed automatic editing in feed mode (maximum speed: 3 times normal speed in full edit mode or 4 times normal speed in simple edit mode).

To carry out automatic editing in feed mode, hold down the FEED button and press the AUTO EDIT button.
This increase the data transfer rate to the maximum possible, and carries out the automatic edit.

For details of the procedure for feed mode settings, see the section "Playback in jog mode" (page 4-8).
On how to make settings for full edit mode and simple edit mode, see Section 7-4, "Disk File Management Menu" (page 7-25).

FEED button

AUTO EDIT button
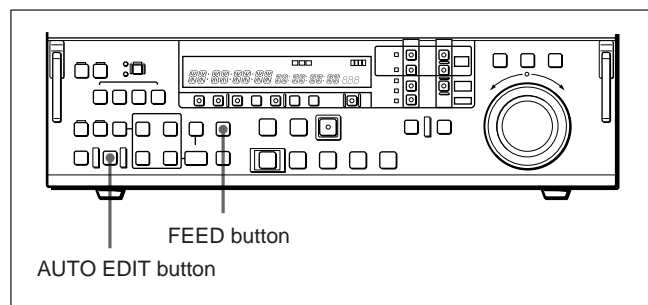
Monitor output

The monitor output video during editing and previews depends on device specification and other settings.

For details, see the table "Monitor output video during previews and editing" on the previous page.

Monitoring during automatic editing in feed mode

The monitor output is P-P-P.

Stopping the editing operation

You can use either of the following methods to stop an editing operation in progress:
• Hold down the OUT button and press the ENTRY button.

The point where you press the two buttons becomes the OUT point, and editing stops.
• Press the STOP button.

This aborts the editing, and the AUTO EDIT button and PREVIEW/REVIEW button flash. The IN and OUT point settings are unchanged, and you can carry out a preview or re-execute the automatic editing.

Note

When MASTER or PROGRAM is specified as the player and PROGRAM is specified as the recorder, executing the automatic editing with the recorder OUT point set causes the program information to be saved to the hard disk and no image to be output to the monitor. As a result, it is not possible to abort the editing operation. It is, however, possible to undo the effect of the editing operation after it has completed. *(See the next section 5-2-11, "Undoing an Editing Operation.")*

Reviewing the editing results

After carrying out an editing operation, you can carry out a review, to check the editing results on the monitor.

To carry out a review, press the PREVIEW/REVIEW button after carrying out the edit and before you set any new edit points or make other settings.

The PREVIEW/REVIEW button lights, and the review is carried out.

At the end of the review the PREVIEW/REVIEW button goes off, and the recorder returns to the OUT point.

To adjust the edit points and reexecute the edit after automatic editing

Hold down the RECALL button or DELETE button, and press the ENTRY button to recall the edit points. After adjusting the edit points, press the AUTO EDIT button to carry out the edit again.

Note

When PROGRAM is specified as the recorder, and the EDITING MODE button is set to INS, the event pertaining to an automatic editing operation is inserted at the recorder IN point. An event already present at the recorder IN point is not overwritten, but slides forward.

For details of how to adjust edit points, see Section 5-2-7, "Modifying and Deleting Edit Points" (page 5-8).

5-2-11 Undoing an Editing Operation

When PROGRAM is specified as the recorder, you can use the following procedure to undo the effect of the immediately previous automatic editing operation.
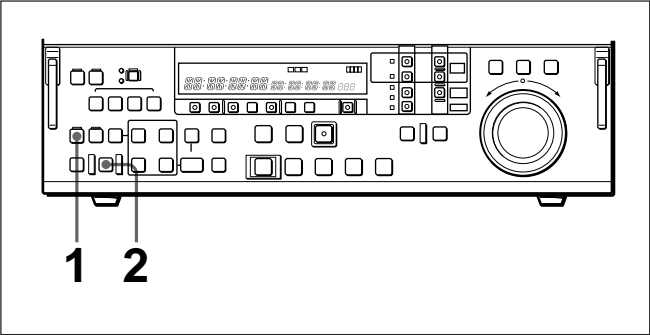
1 Immediately after the automatic editing operation has completed, press the UNDO button, turning it on.

The AUTO EDIT button flashes.

2 Press the AUTO EDIT button.

This undoes the effect of the immediately previous automatic editing operation, and the UNDO button goes off.

Aborting the undo operation before carrying out step 2

Press the UNDO button again, turning it off.
This returns to the state before you carried out step **1**.

5-2-12 Standalone Editing

This refers to editing using as the player an external device which cannot be controlled remotely through the REMOTE-IN(9P) connector. For example, you can record a color bar signal from a signal generator in the joints between the events of an already completed program.

Carrying out standalone editing

To carry out standalone editing using the built-in hard disk, specify EXT as the player and PROGRAM as the recorder.
First use the VIDEO INPUT SELECT switch to select the signal being generated by the signal generator connected to the unit, then with both the PLAYER button and RECORDER button off (the SELF mode), set the IN point.
The AUTO EDIT button flashes, and it is now possible to carry out automatic editing.
If necessary, you can also first set the OUT point.

To record an external signal in SELF mode specifying MASTER as the recorder
Press the REC button and PLAY button simultaneously.

5-3 Multi-Event Editing

On the device specified as the player, it is possible to set up to 100 sets of player IN and OUT points, and then to edit (playback and record) continuously the segments defined by these IN and OUT points (the segments being hereafter referred to as "events"). When TAPE is specified as the player and PROGRAM as the recorder, roughly specifying a number of edit IN and OUT points on the tape and carrying out multi-event editing allows you to reduce the editing time and improve the efficiency with which the hard disk capacity is used. After carrying out multi-event editing, you can adjust the edit points of each event.

For details of how to adjust edit points after carrying out multi-event editing, seeSection 5-4-1, "Modifying Edit Points After Carrying Out Editing" (page 5-17).

Notes

• It is not possible to carry out multi-event editing with TAPE specified as the recorder.
• It is possible to specify only an IN point on the recorder.
• The event specifications are lost when the system is powered off or when the player specification is changed.

5-3-1 Saving Event Specifications

To save event specifications use the following procedure.
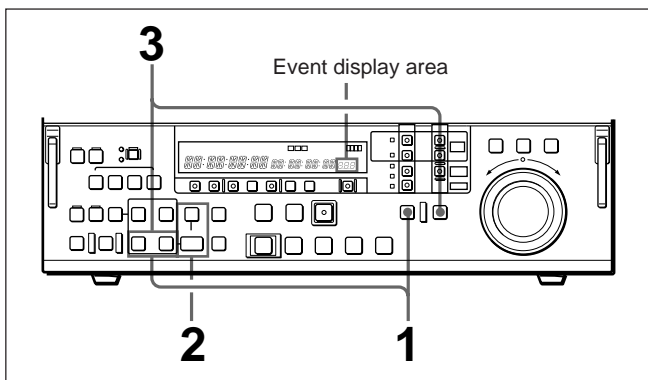
1 Set both of the player IN and OUT points.

If you specify the player IN point to be after the OUT point
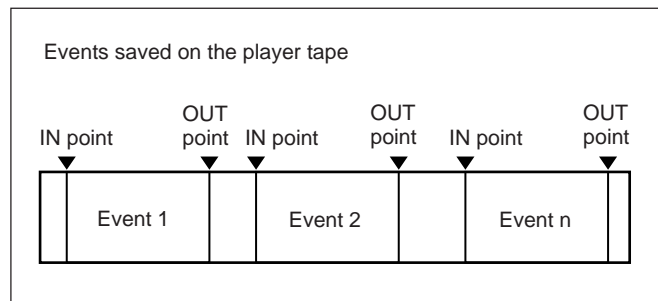The DELETE button flashes.
Holding down the DELETE button, press the IN or OUT button to delete the player IN or OUT point, then enter the correct value.

2 Holding down the EVENT button, press the ENTRY button.

The event defined by the player IN and OUT points set in step **1** is saved; the EVENT button lights, and the event number is displayed in the event display area.
(The event numbers start from 1, and continue in sequence 2, 3, 4, etc.)

Repeat steps 1 and 2 for each of the events (maximum 100) you wish to save.

Events saved on the player tape

3 Set either the recorder IN point or OUT point. (This step is not required when MASTER is the recorder.)

If both recorder IN and OUT points are set
(Before Version 2.00)
The recorder OUT point is ignored.
(Version 2.00 or later)
The DELETE button flashes.
Holding down the DELETE button, press the OUT button to delete the recorder OUT point.

5-3-2 Modifying and Deleting Events

Modifying the event IN and OUT points

Once an event has been saved, it is not possible to modify the IN and OUT points. First delete the event, then save a new version with the required settings.

For details of how to adjust edit points before saving the event, see Section 5-2-7, "Modifying and Deleting Edit Points" (page 5-8).
*For details of how, after carrying out editing, to recall an event from the program and modify it, see Section 5-4-1, "Modifying Edit Points After Carrying Out Editing" (page 5-17).*

Deleting an event

When events are saved, you can delete them sequentially from the newest event.
To delete the newest event, hold down the DELETE button and press the EVENT button.
This deletes the newest event, and the event number shown in the event display area is decremented by one.

Event display area
EVENT button
DELETE button
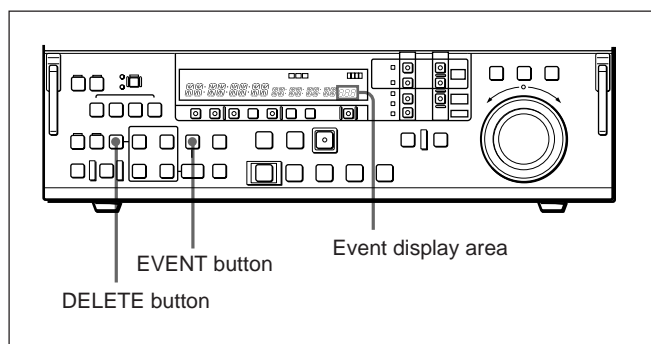
By repeating this operation, you can delete any number of consecutive events.
If all the events are deleted, the EVENT button goes off.

5-3-3 Preview

When it is possible to carry out a preview, the PREVIEW/REVIEW button flashes.
To carry out the preview, press the PREVIEW/REVIEW button.
• In the case of an event not yet saved (the IN button and OUT button are both lit, and the EVENT button is off)
  The current event only is previewed.
• After an event is saved (the IN button and OUT button are both off, and the EVENT button is lit)
  All of the saved events are previewed as a continuous editing segment.
In either case, only the player playback video for the editing segment is monitored. (Player preview)
If, however, MASTER or PROGRAM is the player and PROGRAM is the recorder, then the recorder playback video for the preroll and postroll segments can also be monitored (R-P-R preview).

5-3-4 Carrying Out Multi-Event Editing

When the events have been saved, and you can carry out multi-event editing, the AUTO EDIT button flashes.
To carry out the multi-event editing, press the AUTO EDIT button.
The AUTO EDIT button changes from flashing to continuously lit, and the editing operation starts.
When the editing operation completes, the AUTO EDIT button goes off.

Notes

• When you carry out the editing, the saved events are deleted.
• In the multi-event editing process, if there are edit points set but not saved as an event, they are ignored.

Monitoring during editing

During editing, you can monitor the player events in the same way as in a preview.

Note

When MASTER or PROGRAM is specified as the player and PROGRAM is specified as the recorder, executing the multi-event editing causes the program information to be saved to the hard disk and no image to be output to the monitor.

Stopping the editing operation (with TAPE or EXT specified as the player)

To stop a multi-event editing operation in progress, press the STOP button.

Reviewing the editing results

After carrying out an editing operation, you can carry out a review, to check the editing results on the monitor.
To carry out a review, press the PREVIEW/REVIEW button after carrying out the edit and before you set any new edit points or make modifications.
The PREVIEW/REVIEW button lights, and the review is carried out.
At the end of the review the PREVIEW/REVIEW button goes off, and the recorder returns to the OUT point of the last event.

5-4 Special Nonlinear Editing Operations

This section describes the following special editing operations which you can use for nonlinear editing on the unit:
• Modifying edit points after carrying out editing
• Deleting an arbitrary segment after carrying out editing
• Reordering events after carrying out editing

5-4-1 Modifying Edit Points After Carrying Out Editing

You can recall an event from a created program and modify the edit points.
With PROGRAM specified as the recorder, and with both the PLAYER button and RECORDER button off (the SELF mode), carry out the following procedure.
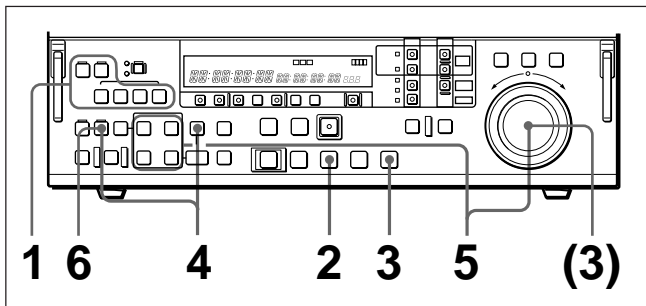
1 Select the editing mode.
• **For assemble editing or all-channel insert editing**
  Press the ASSEMBLE/ALL button, turning it on.
• **For separate channel insert editing**
  Press one of the VIDEO, and AUDIO CH-1 to AUDIO CH-4 buttons, turning it on.
When the ASSEMBLE/ALL button is lit, you can select INS (insert) or OVL (overlay) mode. In other cases, OVL is selected automatically. The editing results depend on which of INS and OVL is selected.

For details, see the section "Nonlinear editing and the setting of the EDITING MODE button" (page 5-6).

2 Press the PLAY button to start playing back the program.

3 At any point in the event of which you wish to modify an edit point, press the STOP button or press the search dial to stop the playback.

4 Holding down RECALL button, press the EVENT button, turning it on.

The IN and OUT points of the event you selected in step **3** are recalled and the IN button and OUT button come on.

Aborting the modification of the edit points
Press the RECALL button once more, turning it off.

5 Carry out either of the following operations.
• Hold down the IN button or OUT button (or AUDIO IN button or AUDIO OUT button) according to the edit point you wish to modify, and turn the search dial to adjust the edit point.
• Hold down the ENTRY button, and press the IN button or OUT button (or AUDIO IN button or AUDIO OUT button) according to the edit point you wish to modify, and set a new value.

6 Press the AUTO EDIT button, carrying out edit point modification.

Notes
• For an event which has different edit points specified for different channels, when you have selected assemble editing or all-channel insert editing (the ASSEMBLE/ALL button is lit), it is not possible to modify the edit points.
• Events within a program comprise data recorded as files on the hard disk MASTER. It is not possible to modify the edit points outside the range of data physically present.
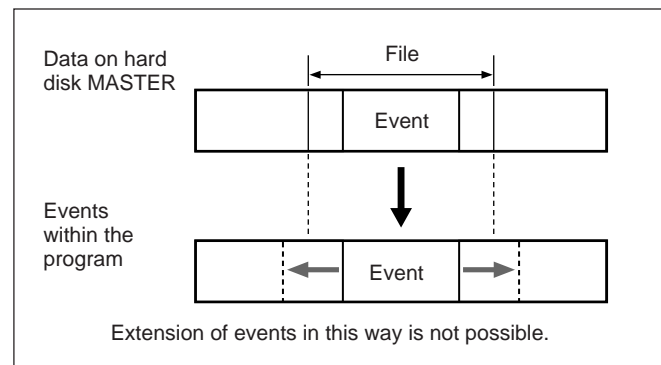
5-4-2 Deleting an Arbitrary Segment After Carrying Out Editing

You can delete an arbitrary segment from a created program.

With PROGRAM specified as the recorder, and with both the PLAYER button and RECORDER button off (the SELF mode), carry out the following procedure. (This operation is only possible when the editing mode selection is such that the ASSEMBLE/ALL button is lit.)
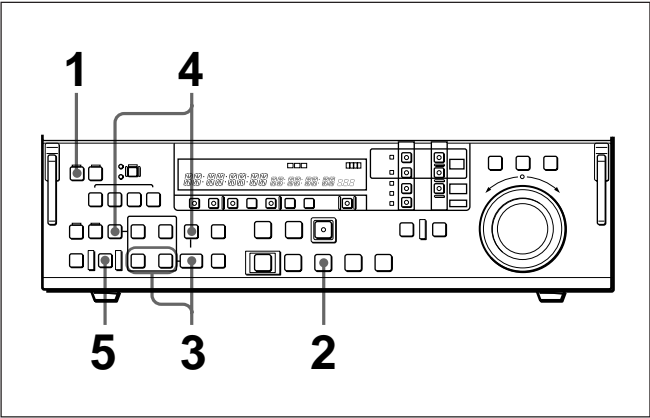
1 Press the ASSEMBLE/ALL button, turning it on.

2 Press the PLAY button to start playing back the program.

3 At the required positions, hold down the ENTRY button and press the IN button or OUT button to define the segment to be deleted.

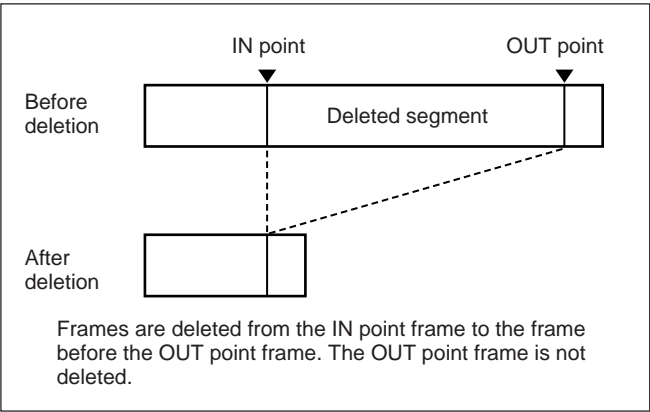**4** Hold down the DELETE button, and press the EVENT button.

The DELETE button and EVENT button light, and the PREVIEW/REVIEW button and AUTO EDIT button begin to flash.

Aborting the deletion of the segment
Press the DELETE button once more, turning it off.

5 Press the AUTO EDIT button.

This deletes the segment defined in step **3** from the program.

Frames are deleted from the IN point frame to the frame before the OUT point frame. The OUT point frame is not deleted.

To delete the entire segment after the IN point
Carry out the procedure described above without setting an OUT point.

To delete the entire segment before the OUT point
Carry out the procedure described above without setting an IN point. (The OUT point frame is not deleted.)

5-4-3 Reordering Events After Carrying Out Editing

By applying the operations described above, you can change the order of events within a program.
This section describes the sequence of operations required to reorder events as shown in the following figure.
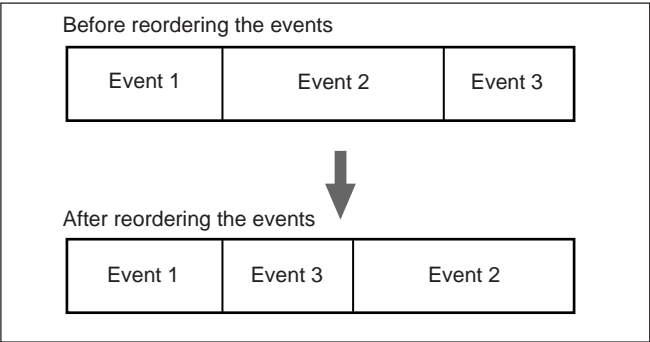
1 Specify PROGRAM as both recorder and player.

2 Specify the IN and OUT points of event 2 as the player IN and OUT points.
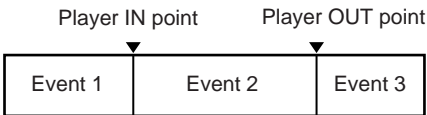
3 Specify the OUT point of event 3 as the recorder IN point.

Recorder IN point

Event 1	Event 2	Event 3

The AUTO EDIT button and PREVIEW/REVIEW button light.

4 Carry out automatic editing.

This records event 2 at the recorder IN point.

Recorder IN point

Event 1	Event 2	Event 3	Event 2

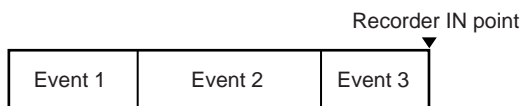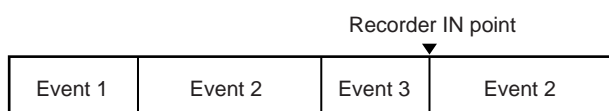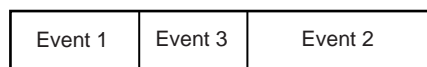**5** Use the procedure described in Section 5-4-2, "Deleting an Arbitrary Segment After Carrying Out Editing" to delete original event 2 between events 1 and 3.

Event 1	Event 3	Event 2

5-4-4 Simultaneous Recording on Tape and the Hard Disk

An external signal input to the unit can be recorded on tape and on the hard disk simultaneously. To do this, specify EXT as the player and MASTER as the recorder, then proceed as follows.
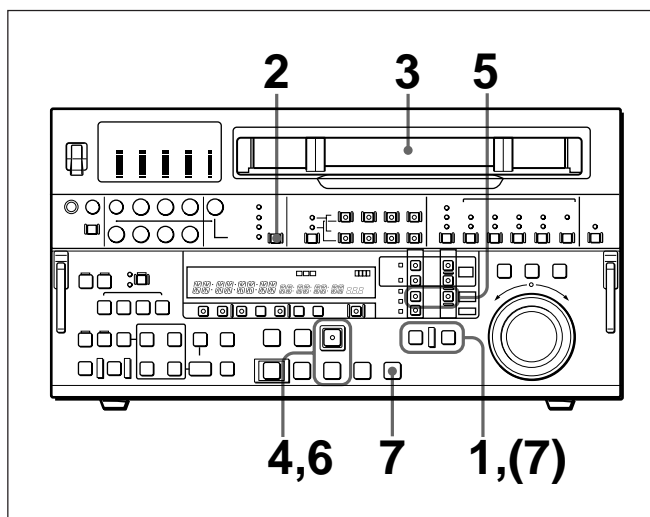
1 Make sure the PLAYER button and RECORDER button are both off. (SELF mode)
If either or both of them are on, press them, turning them off.

2 Use the VIDEO INPUT SELECT switch to select the input signal.

3 Insert a cassette.

4 Hold down the PLAY button and press the REC button.

Recording on the hard disk (DISK MASTER) starts.

5 Press the TAPE button in the PLAYER row or RECORDER row.

The TAPE button starts flashing.
While the TAPE button is flashing, the tape/disk transport control section on the lower control panel is operable to control the tape transport.

6 Hold down the PLAY button and press the REC button.

Recording on the tape starts.

7 To stop recording, operate as follows.
• **To stop recording on the tape**
Press the STOP button.
• **To stop recording on the hard disk**
Press the PLAYER button or RECORDER button, turning the flashing TAPE button off, then press the STOP button.

To eject the cassette
Press the TAPE button, causing it to start flashing, then press the EJECT button

5-5 Summary of Editing Operations

The following figure summarizes the general flow of operations in a typical multi-event editing operation from material originally acquired on tape.

| Specify TAPE as the player and PROGRAM as the recorder. |

↓
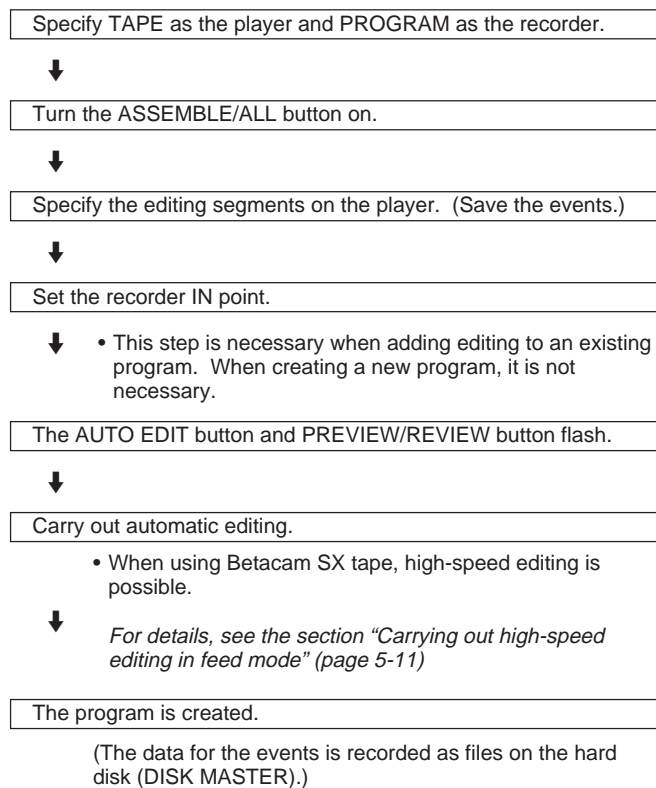
Reference for operations:
Section 5-2-4, "Specifying Devices" (page 5-4)

| Turn the ASSEMBLE/ALL button on. |

↓

Reference for operations:
Section 5-2-5, "Selecting the Editing Mode" (page 5-4)

| Specify the editing segments on the player. (Save the events.) |

↓

References for operations:
Section 5-2-6, "Setting Edit Points" (page 5-7)
Section 5-3-1, "Saving Event Specifications" (page 5-14)

| Set the recorder IN point. |

↓ • This step is necessary when adding editing to an existing program. When creating a new program, it is not necessary.

Reference for operations:
Section 5-2-6, "Setting Edit Points" (page 5-7)

| The AUTO EDIT button and PREVIEW/REVIEW button flash. |

↓

| Carry out automatic editing. |

• When using Betacam SX tape, high-speed editing is possible.

↓ *For details, see the section "Carrying out high-speed editing in feed mode" (page 5-11)*

References for operations:
Section 5-2-10, "Carrying Out Editing" (page 5-11)
Section 5-3-4, "Carrying Out Multi-Event Editing" (page 5-15)

| The program is created. |

(The data for the events is recorded as files on the hard disk (DISK MASTER).)

When modification of edit points or other operations are necessary after carrying out editing

See Section 5-4-1, "Modifying Edit Points After Carrying Out Editing" (page 5-17).

Chapter 5   Editing Using the Built-in Hard Disk
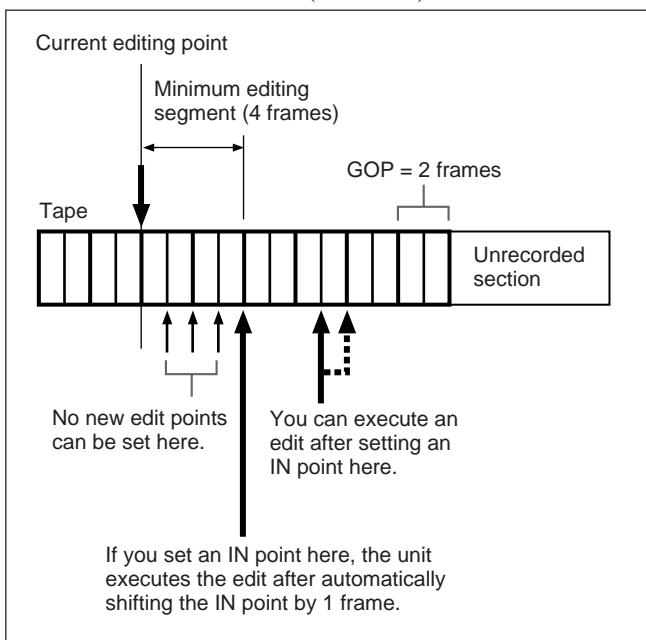
5-6 Points to Remember About Editing

5-6-1 Automatic Previews in Tape Editing

When editing with TAPE selected as the recorder, a preview is conducted automatically when you press the AUTO EDIT button and edit execution begins after the preview.

Tracking information about the IN points on the tape is required in automatic editing. This information is collected during the preview.

5-6-2 Tape Editing Precision

Tape editing is carried out as assemble editing in units of GOPs (Group of Picture = 2 frames). Tape editing precision is ±1 frame. The smallest editing segment that can be set is 2 GOPs (4 frames).

Current editing point

Minimum editing segment (4 frames)

GOP = 2 frames

Tape

Unrecorded section

No new edit points can be set here.

You can execute an edit after setting an IN point here.

If you set an IN point here, the unit executes the edit after automatically shifting the IN point by 1 frame.

There is no fixed relationship between odd-numbered or even-numbered frames and GOP divisions. The relationship depends on current conditions.
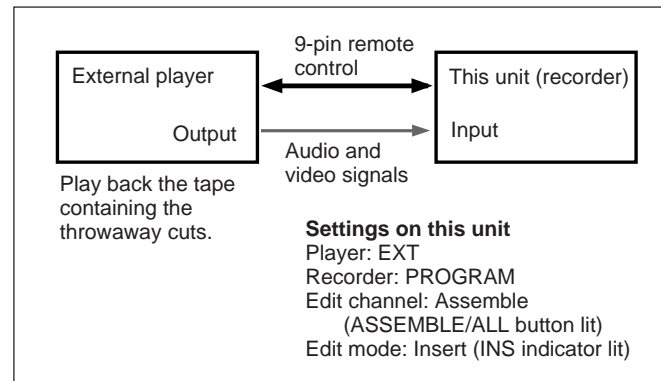
5-6-3 Preroll In Editing From Hard Disk to Tape

When you select TAPE as the recorder and MASTER or PROGRAM as the player, preroll is required for both the recorder and player.

Therefore, when editing to tape from the start of your program, you should insert about 30 seconds of throwaway cuts in the preroll segment at the start of the program.

You can use either of the following two methods to insert throwaway cuts into a program that has already been created.
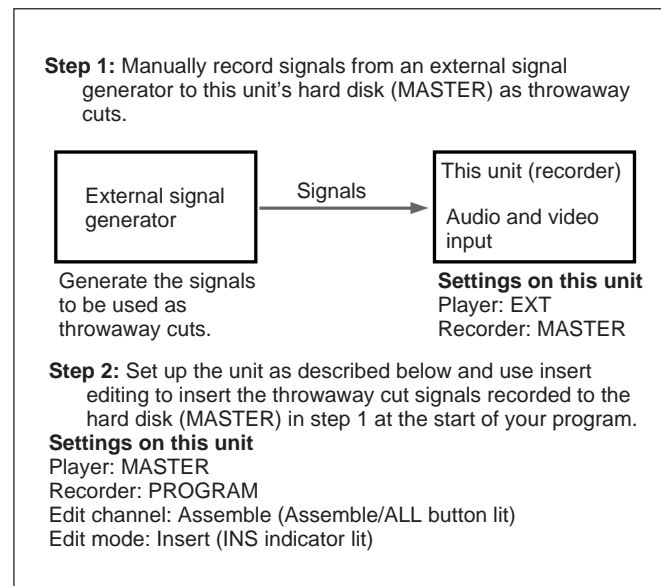
Inserting cuts by insert editing with an external player

Use insert editing to insert throwaway cuts from an external player at the start of your program.

9-pin remote control

External player

This unit (recorder)

Output

Input

Audio and video signals

Play back the tape containing the throwaway cuts.

Settings on this unit
Player: EXT
Recorder: PROGRAM
Edit channel: Assemble
    (ASSEMBLE/ALL button lit)
Edit mode: Insert (INS indicator lit)

Recording signals from an external signal generator

Manually record signals from an external signal generator to this unit's hard disk (MASTER), then insert them as throwaway cuts at the start of your program.

Step 1: Manually record signals from an external signal generator to this unit's hard disk (MASTER) as throwaway cuts.

External signal generator

Signals

This unit (recorder)

Audio and video input

Generate the signals to be used as throwaway cuts.

Settings on this unit
Player: EXT
Recorder: MASTER

Step 2: Set up the unit as described below and use insert editing to insert the throwaway cut signals recorded to the hard disk (MASTER) in step 1 at the start of your program.

Settings on this unit
Player: MASTER
Recorder: PROGRAM
Edit channel: Assemble (Assemble/ALL button lit)
Edit mode: Insert (INS indicator lit)

5-6-4 Limitations When Editing With MASTER as Player

Player IN and OUT points cannot be located in different files.
When you execute an edit without setting an OUT point, the edit ends automatically at the end point of the player (MASTER) file. Continuous editing of several files is not possible.

Multi-event editing
Events can be registered in different files, but a single event cannot extend across different files.

5-6-5 Control of the Audio and Video Recording Levels

During execution of an automatic edit, you can control the audio recording level and video recording level by rotating the REC and VIDEO knobs on the upper control panel and the VIDEO knob on the subsidiary control panel. The following table shows the knobs employed, according to the device specification and the signals controlled.

Device specification		Audio recording level	Video recording level
Player	Recorder		
EXT[a]	TAPE	REC knob	VIDEO knob[b]
	MASTER		
	PROGRAM		
TAPE	TAPE	Editing not possible	
	MASTER	REC knob[c]	Subsidiary panel[c]
	PROGRAM		
PROGRAM	TAPE	REC knob	Subsidiary panel
	MASTER	Editing not possible	
	PROGRAM	REC knob[d]	Subsidiary panel[d]
MASTER	TAPE	REC knob	Subsidiary panel
	MASTER	Editing not possible	
	PROGRAM	REC knob[e]	Subsidiary panel[e]

a) Only when external input is other than SDDI.
b) Only when composite video input signals are selected. Otherwise control is not possible.
c) Only when using Betacam or Betacam SP tape. Otherwise control is not possible.
d) Control is possible only during editing in SELF mode started by pressing the EVENT button and the AUDIO EDIT button simultaneously on Version 2.00 or later units.
   In this case, by setting extended menu items 321 and 322 to EXT, you can control signals re-input via external devices such as a video effector and an audio mixer.
e) Control is possible only during editing started by pressing the EVENT button and the AUDIO EDIT button simultaneously on Version 2.00 or later units.
   In this case, by setting extended menu items 321 and 322 to EXT, you can control signals re-input via external devices such as a video effector and an audio mixer.

6-1 Automatic Editing

This section describes how to carry out automatic editing using the VTR built into the unit and an external VTR connected to the unit using the REMOTE-IN(9P) connector.

6-1-1 Overview

Editing mode

Editing with the VTR built into the unit and an external VTR is always carried out as assemble editing. This is the editing mode in which successive portions of the edited result are recorded on the end of the already completed section. The CTL signal, video signal, audio signal, and timecode are all newly recorded on the tape.

Using CTL to interpolate timecode values

When you are using timecode values as edit point addresses, the timecode must be recorded on the tape in correct time sequence (i.e. the sections must be in strictly ascending time order).
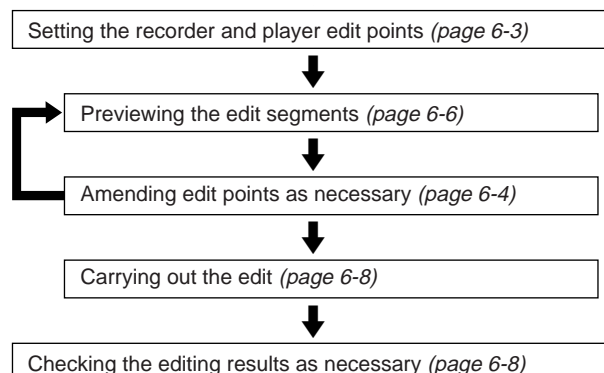If the timecode values are all in correct time sequence, then if there are any discontinuities in the timecode, the unit allows them to be interpolated using the CTL counter.

Recording timecode

For automatic editing, regardless of the settings of the INT/EXT switch and PRESET/REGEN switch, timecode is recorded continuously from the previous timecode recorded on the tape. Using extended menu item 610, it is also possible to record time code according to the settings in the time code setting section on the lower control panel.

Sequence of editing operations

The following flowchart outlines the sequence of operations in automatic editing with two VTRs.

```
Setting the recorder and player edit points (page 6-3)
              ↓
Previewing the edit segments (page 6-6)
              ↓
Amending edit points as necessary (page 6-4)
              ↓
Carrying out the edit (page 6-8)
              ↓
Checking the editing results as necessary (page 6-8)
```
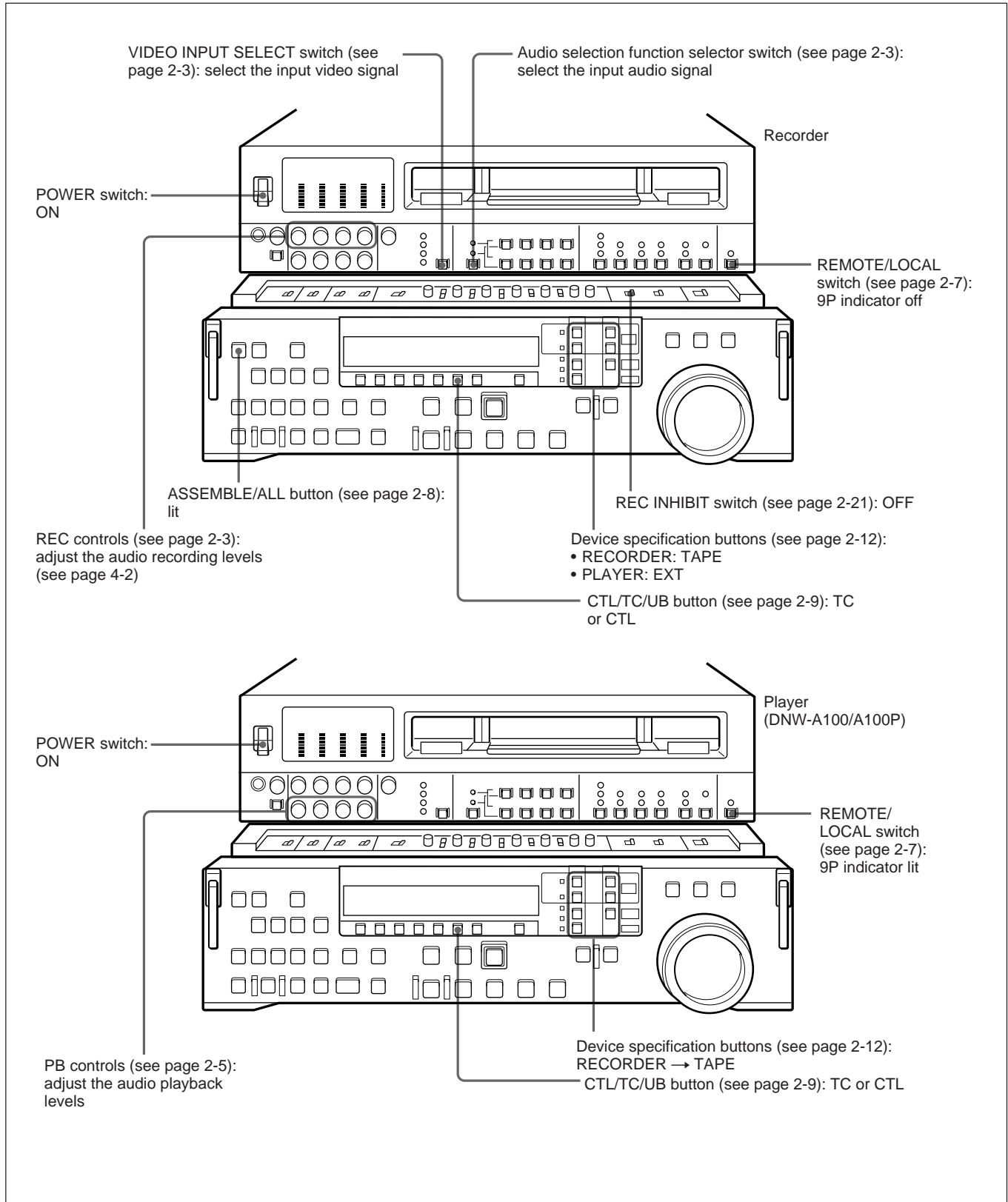
Notes on video output to the monitor

In E-E mode, the video output of the unit is delayed by the time for video circuit processing with respect to the input video signal.
For playback to be carried out in editing mode with both the player and recorder specified, you can use extended menu item 701 to delay the V-SYNC phase, aligning it with the video output of the unit. (This is not possible for playback operations described in Chapter 4, "Recording and Playback".)

6-1-2 Switch Settings

Before beginning editing, set the switches as follows.

VIDEO INPUT SELECT switch (see page 2-3): select the input video signal

Audio selection function selector switch (see page 2-3): select the input audio signal

Recorder

POWER switch: ON

REMOTE/LOCAL switch (see page 2-7): 9P indicator off

ASSEMBLE/ALL button (see page 2-8): lit

REC INHIBIT switch (see page 2-21): OFF

REC controls (see page 2-3): adjust the audio recording levels (see page 4-2)

Device specification buttons (see page 2-12):
• RECORDER: TAPE
• PLAYER: EXT

CTL/TC/UB button (see page 2-9): TC or CTL

Player (DNW-A100/A100P)

POWER switch: ON

REMOTE/ LOCAL switch (see page 2-7): 9P indicator lit

Device specification buttons (see page 2-12): RECORDER → TAPE

CTL/TC/UB button (see page 2-9): TC or CTL

PB controls (see page 2-5): adjust the audio playback levels

6-1-3 Setting Edit Points

Set the edit points for assemble editing between the recorder and player.

To set an edit point

3   **1**   **2**
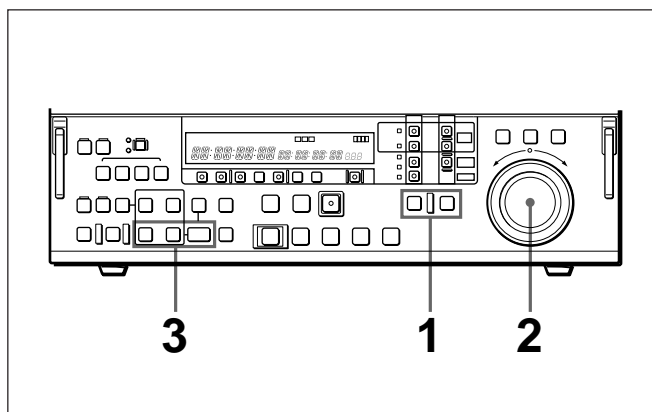
1   Press the RECORDER button or PLAYER button to select the VTR on which you will set the edit point.

    The button which you have pressed lights.

2   Turn the search dial in jog or shuttle mode, and position the tape at the required edit point.

    For details of playback in jog or shuttle mode, see the sections "Playback in jog mode" (page 4-8) and "Playback in shuttle mode" (page 4-9).

3   At the point at which you wish to set the IN point or OUT point, hold down the ENTRY button and press the IN button or OUT button as the case may be.

    When the IN point or OUT point is set, the IN button or OUT button respectively lights.

4   Repeat steps **1** to **3** until all the necessary edit points are set.

    When the IN points on both the recorder and player are set, the PREVIEW/REVIEW button and AUTO EDIT button flash, and it becomes possible to carry out a preview or editing operation.

Automatic setting of edit points

Editing requires four edit points: the IN and OUT points on both the recorder and player. However, once any three of these points are defined, the last point is set automatically. For example, if you set the recorder IN and OUT points, and the player IN point, the player OUT point is set automatically.

Note

In the following cases, the DELETE button begins to flash and you cannot carry out automatic editing.
• The OUT point is before the IN point.
• All four of the recorder IN and OUT points and the player IN and OUT points have been set.
Use the DELETE button to delete a redundant edit point, or set the edit points correctly.

For details of deleting edit points, see the section "Deleting an edit point" (page 6-5).

To display the time value for an edit point

You can display the time value for an edit point in the device specification and display section *(see page 2-10)*. The IN point appears in time data display area 1, and the OUT point in time data display area 2.

Time data display area 1

Time data display area 2

2   **1**
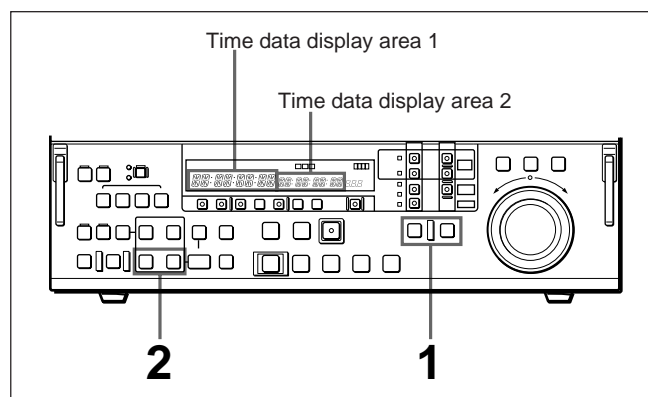
1   Press the RECORDER button or PLAYER button to select the VTR on which you wish to check the edit point.

    The button you have pressed lights.
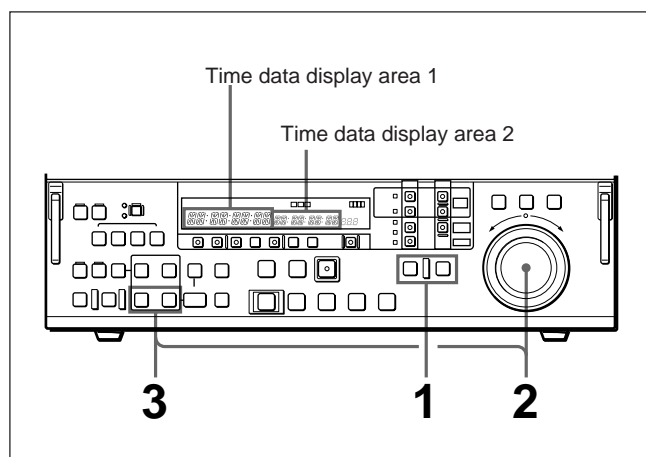
2   Hold down the IN button or OUT button according to the edit point you wish to check.

    While you hold down the button, the IN indicator or OUT indicator of time data display area 1 or 2 lights, and the time value of the edit point is displayed.   *(Continued)*

To display the duration of an edit

You can display the duration between two edit points in the following three cases, in the device specification and display section (*see page 2-10*).
• When both the IN point and OUT point are set: the duration of the segment between the two points
• When only one of the IN point and OUT point is set: the duration of the segment between the point which is set and the current tape position
• When neither of the IN point and OUT point is set: the duration of the previous editing segment
The duration is displayed across time data display areas 1 and 2, thus: "DURATION 00:01:10:00".
To display a duration, use the following procedure.

1 Press the RECORDER button or PLAYER button to select the VTR on which you wish to check the duration.

The button you have pressed lights.

2 Hold down both the IN button and OUT button.

While you hold down the buttons, the duration is displayed across time data display areas 1 and 2.

6-1-4 Modifying and Deleting Edit Points

If the edit points are not set correctly, for example if an OUT point is before a corresponding IN point, the DELETE button flashes, and it is not possible to carry out a preview or editing operation. In this case, either modify the erroneous edit point, or first delete it and then enter it correctly.

Modifying an edit point

To modify an edit point, use the following procedure.

Time data display area 1

Time data display area 2

3   **1**   **2**

1 Press the RECORDER button or PLAYER button to select the VTR on which you wish to modify the edit point.

The button you have pressed lights.

2 Hold down the IN button or OUT button according to the edit point you wish to modify, and turn the search dial as follows:
• To advance the edit point: the FORWARD direction
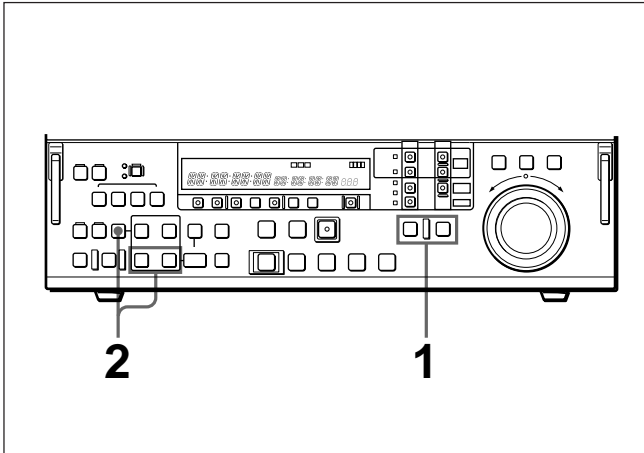• To delay the edit point: the REVERSE direction

The time value for the IN or OUT point displayed in time data display area 1 or 2 increases or decreases according to the direction in which you turn the search dial.

3 When the modification is completed, release the button you pressed in step **2**.

Deleting an edit point

To delete an edit point, use the following procedure. You can use the same procedure whether or not the DELETE button is flashing.

1 Press the RECORDER button or PLAYER button to select the VTR on which you wish to delete the edit point.

The button you have pressed lights.

2 Hold down the DELETE button and press the IN button or OUT button according to the edit point you wish to delete.

The IN point or OUT point is deleted according to which button you pressed, and the DELETE button goes off.

To restore a deleted edit point
To restore an edit point immediately after deleting it, hold down the IN button or OUT button according to the edit point you wish to restore, and press the RECALL button.

6-1-5 Cue-up to Edit Points and Preroll

To preroll to an edit IN point or cue up to any edit point, use the following procedure.

1 Press the RECORDER button or PLAYER button to select the VTR on which you wish to operate.

The button you have pressed lights.

2 • **To cue up to an edit point**
   Hold down the IN button or OUT button according to the edit point to which you wish to cue up, and press the PREROLL button.

   This cues up to the edit point you have selected.
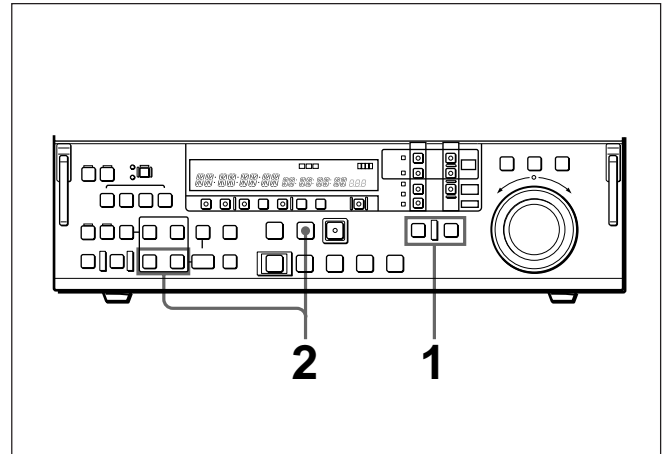
   • **To preroll**
   Press the PREROLL button.

   The tape is wound back to a position 5 seconds before the edit IN point, and stops.

To change the preroll time
The factory default setting for the preroll time is 5 seconds, but you can use basic menu item 001 to change this to any value from 0 to 30 seconds. If you change the preroll time, make sure that the setting is not longer than the recording length before the edit IN point.
Note that for automatic editing, the preroll time setting on the recorder takes precedence.
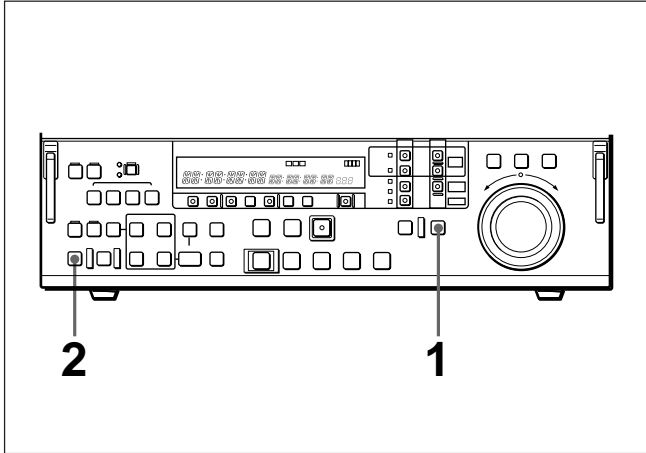
For more information about the basic menu, see Section 7-2, "Basic Menu" (page 7-1).

6-1-6 Preview

When you have set the edit points, the PREVIEW/
REVIEW button flashes, indicating that you can carry
out a preview.
To carry out a preview, use the following procedure.

1 Press the RECORDER button, turning it on.

2 Press the PREVIEW/REVIEW button.

The PREVIEW/REVIEW button changes from
flashing to continuously lit, and the preview is
carried out.
At the end of the preview, the PREVIEW/
REVIEW button goes off.

To stop the preview
Press the STOP button.
The tape stops at the position where you pressed
the button.

To return the tape to the preroll point
Press the PREROLL button.

To return the tape to the IN point or OUT point
Press the PREROLL button and the IN button or OUT
button simultaneously.

After the preview, make adjustments to the edit points,
then repeat the preview as necessary.

*For details of how to modify or delete edit points, see
Section 6-1-4, "Modifying and Deleting Edit Points" (page
6-4).*

Monitor output

During a preview, you can monitor the playback video
on a monitor connected to the recorder. The type of
video depends on the current settings.

*For details, see the table "Monitor output video during
previews and editing" in Section 5-2-9 "Preview", referring
to the case when the player is EXT and the recorder is
TAPE.*

6-1-7 Carrying Out Automatic Editing

Overview

When you carry out automatic editing, the recorder and player operate as shown in the following figure, to copy the video and audio signals between the IN and OUT points on the player to the segment between the IN and OUT points on the recorder.

Monitor output

During execution of an automatic edit, you can monitor the playback video on a monitor connected to the recorder. The type of video depends on the current settings.

For details, see the table "Monitor output video during previews and editing" in Section 5-2-9 "Preview", referring to the case when the player is EXT and the recorder is TAPE.
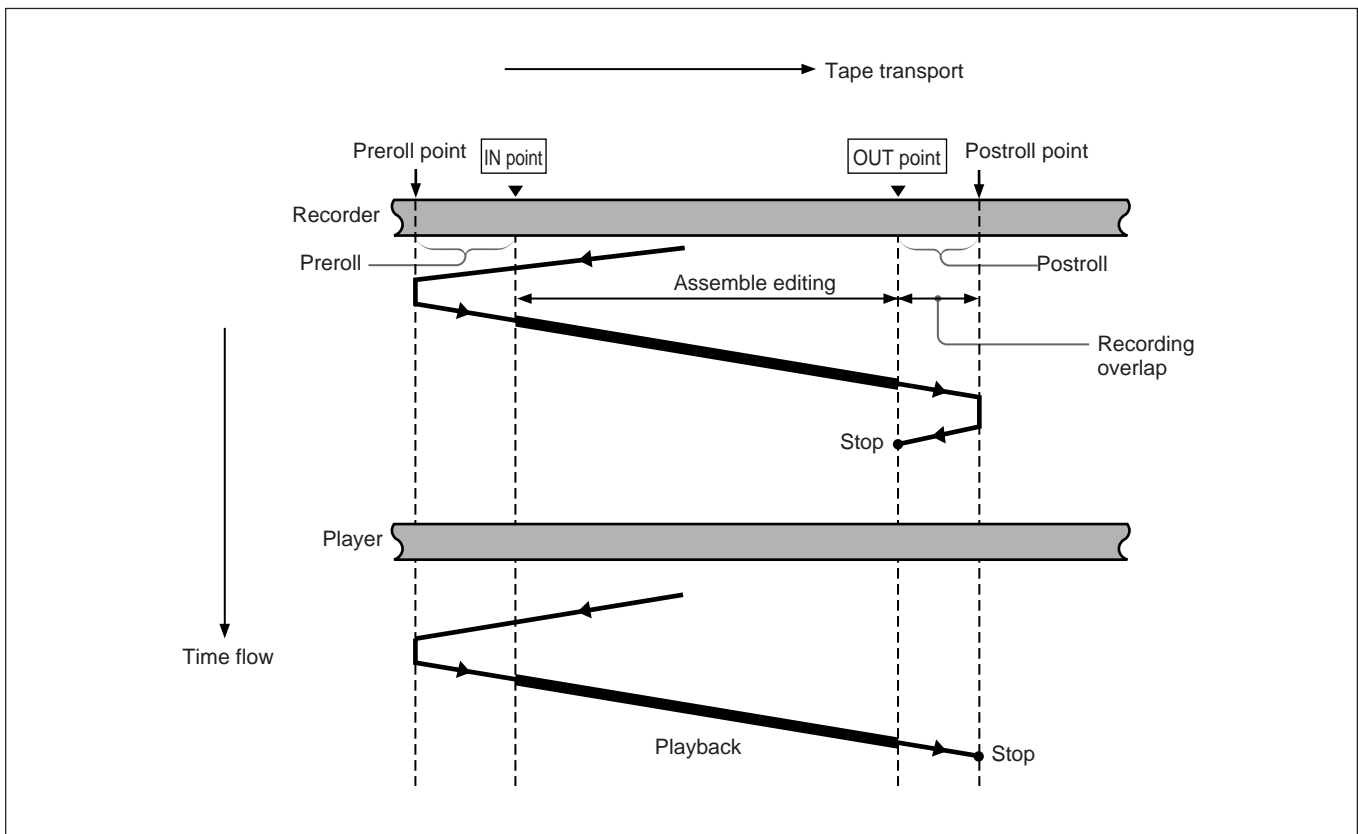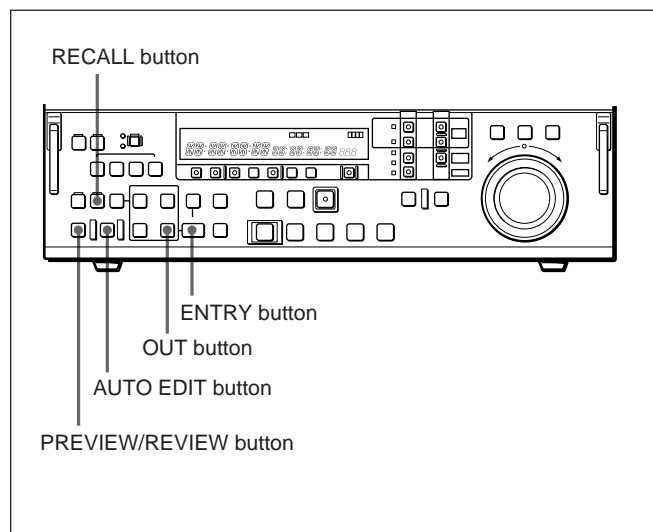
Starting automatic editing

When you have set the edit points, press the flashing AUTO EDIT button.
The AUTO EDIT button changes from flashing to continuously lit, and the automatic editing operation begins.
At the end of the editing operation, the AUTO EDIT button goes off.

RECALL button

ENTRY button

OUT button

AUTO EDIT button

PREVIEW/REVIEW button

To change the OUT point after starting automatic editing operation

After starting the automatic editing operation, to end the operation before the preset OUT point, hold down the ENTRY button and press the OUT button.
The position where you pressed the button becomes the OUT point, and editing ends.

To abandon automatic editing

Press the STOP button.
The automatic editing operation is abandoned. At the same time, the PREVIEW/REVIEW button and AUTO EDIT button start flashing, and the state before the editing was started is restored.
In this case, the IN and OUT points already set are preserved so that you can carry out a preview or automatic editing operation again by pressing the PREVIEW/REVIEW button or AUTO EDIT button.

Reviewing the editing results

After carrying out an editing operation, you can carry out a review, to check the editing results on the monitor.
To carry out a review, after carrying out the edit, and before you set any new edit points or make other settings, press the PREVIEW/REVIEW button.
The PREVIEW/REVIEW button lights, and the review is carried out.
At the end of the review the PREVIEW/REVIEW button goes off, and the tape returns to the OUT point.

After automatic editing, to adjust the edit points and reexecute the edit

Hold down the RECALL button or DELETE button, and press the ENTRY button to recall the edit points.
After adjusting the edit points, press the AUTO EDIT button to carry out the edit again.

For details of how to adjust edit points, see Section 6-1-4, "Modifying and Deleting Edit Points" (page 6-4).
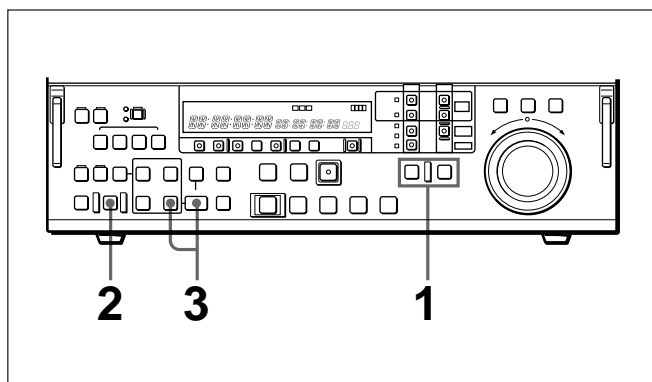
6-2 Special Automatic Editing Methods

This section describes the following automatic editing methods:
• Quick editing
• Continuous editing
• Standalone editing

6-2-1 Quick Editing

After selecting the edit mode, you can save on editing time by setting the edit points and executing the edit at the same time.
For quick editing, use the following procedure.

1 When operating the player, press the PLAYER button, turning it on, and when operating the recorder, press the RECORDER button, turning it on, then stop the tapes on both the player and the recorder at the positions you wish to make the respective IN points.

2 Press the AUTO EDIT button.

Editing starts.

3 Watching the editing on the monitor, at the position you wish to make the OUT point, hold down the ENTRY button and press the OUT button.

Editing ends.
The point at which you started the editing becomes the IN point, and the point at which you ended the editing becomes the OUT point.

If you want to preview
In step **1**, after setting the recorder or player IN point, press the PREVIEW/REVIEW button.

6-2-2 Continuous Editing

After an automatic editing operation, the recorder automatically returns to the OUT point. For the second and subsequent editing operations, you can continue editing by simply specifying the IN and OUT points on the player. In this case the current OUT point on the recorder becomes the new IN point.
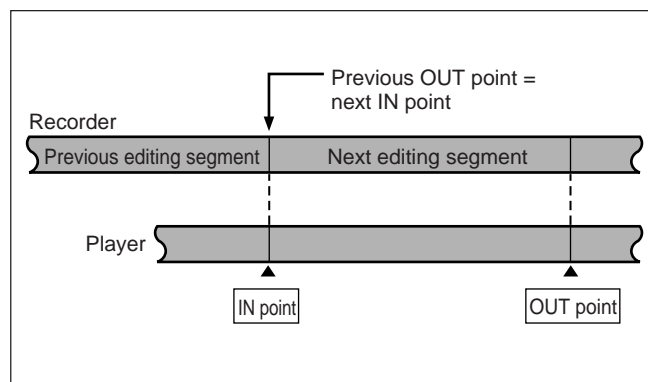
After automatic editing of one edit segment, to carry out continuous editing use the following procedure.

1 Set the player IN and OUT points.

On the recorder the OUT point for the previous edit becomes the new IN point.

2 Press the PREVIEW/REVIEW button to carry out a preview.

3 Press the AUTO EDIT button.

This executes the edit.
When the editing operation is completed, the recorder stops at the OUT point, and the player stops 2 seconds after the OUT point.

By repeating this process, you can carry out continuous editing.

6-2-3 Standalone Editing

This refers to editing using as the player an external device which cannot be controlled remotely through the REMOTE-IN(9P) connector. For example, you can record a color bar signal from a signal generator in the joints between the events of an already completed program.

Carrying out standalone editing
To carry out standalone editing, specify EXT as the player and TAPE as the recorder.

First use the VIDEO INPUT SELECT switch to select the signal being generated by the signal generator connected to the unit, then with both the PLAYER button and RECORDER button off (the SELF mode), set the IN point.
The AUTO EDIT button flashes, and it is now possible to carry out automatic editing.
If necessary, you can also first set the OUT point.

7-1 Menu System Configuration

The menu system of this unit comprises the basic menu, extended menu and disk file management menu.

• Basic menu

  This menu is used to make settings relating, for example, to the following.

  - the hours meter
  - the preroll time
  - the character information superimposed on the output to the monitor
  - switching between the 525/60 (NTSC) system and 625/50 (PAL) system
  - the menu banks for retaining menu settings

For detailed information about menu operation relating to the hours meter, see Section 8-5 "Digital Hours Meter" (page 8-3).

• Extended menu

  This menu is used to make a wide range of settings relating to the functions of this unit, for example, the control panel functions, video and audio control, and digital data processing.

• Disk file management menu

  This menu is used to make settings relating to the creation and management of files on the built-in hard disk.

7-2 Basic Menu

7-2-1 Items in the Basic Menu

The basic menu contains the following items. In the "Settings" column of the table, the factory default settings are indicated by an enclosing box.

Item number	Item name	Settings
001	PREROLL TIME	**0S ... 5S ... 30S:** Set the preroll time to between 0 and 30 seconds. A preroll time of at least 5 seconds is recommended when using this unit for editing.
002[a)]	CHARACTER H-POSITION	Adjust the horizontal screen position of the character information output from the COMPOSITE VIDEO OUTPUT 3 (SUPER) connector for superimposed display on the monitor. **00 ... 14 ... 24 (525 mode)/00 ... 12 ... 22 (625 mode):** The hexadecimal value 00 is for the far left of the screen and 24 (decimal 36) for the far right. Increasing the value moves the position of the characters to the right.
003[a), b)]	CHARACTER V-POSITION	Adjust the vertical screen position of the first line of the characters information output from the COMPOSITE VIDEO OUTPUT 3 (SUPER) connector for superimposed display on the monitor. **00 ... 56 ... 6A (525 mode)/00 ... 6A ... 81 (625 mode):** The hexadecimal value 00 is for the top of the screen and 6A (decimal 106) for the bottom. Increasing the value lowers the position of the characters.
004	SYCHRONIZE	When editing using this unit as a controller and an external VTR connected to this unit via a 9-pin remote control cable, this item determines whether or not to operate the two units in phase synchronization. **ON :** Operate in phase synchronization. **OFF:** Do not operate in phase synchronization.

a) When setting items 002, 003, 009, and 011, watch the monitor screen, and adjust to the required state.

b) When displaying time code values, there is a slight time delay. Therefore, when creating a tape for off-line editing, the information inserted in the upper half of the screen may be delayed by one frame.

Item number	Item name	Settings
005	DISPLAY INFORMATION SELECT	Determines the kind of character information to be output from the COMPOSITE VIDEO OUTPUT 3 (SUPER) connector when the CHARACTER switch on the subsidiary control panel is set to ON. **T&STA** : Time data display information and the unit's status. **T&UB:** Time data display information and the user's bits. **T&CTL:** Time data display information and CTL. **T&T:** Time data display information and time code (LTC or VITC). **TIME:** Time code (LTC or VITC) only. If there is a overlap between the setting of this item and the setting of the control panel, it is automatically avoided. For example, if CTL is selected on the control panel and this menu item setting is T&CTL, then CTL and LTC are output.
006	LOCAL FUNCTION ENABLE	Determines which buttons on the control panel are enabled when this unit is controlled from external equipment. **DIS:** All buttons and switches are disabled. **ST&EJ** : Only the STOP button and EJECT button are enabled. **ENA:** All buttons and switches except the RECORDER button and PLAYER button are enabled.
007	TAPE TIMER DISPLAY	Determines whether to display the CTL count in 12-hour mode or 24-hour mode. **+ –12H**: 12-hour mode **24H:** 24-hour mode
008	MONITORING SELECTION FOR VTR-TO-VTR EDIT	For recorder-player editing with only one monitor connected to the recorder, determines whether the recorder is forced into E-E mode when the recorder's PLAYER button is pressed to view the player's playback signals on the monitor. **MANU:** Do not force the recorder into E-E mode. **AUTO:** Force the recorder into E-E mode.
009[a]	CHARACTER TYPE	Determines the type of characters such as time code output from the COMPOSITE VIDEO OUTPUT 3 (SUPER) connector for superimposed display on the monitor. **WHITE**: White letters on a black background. **BLACK:** Black letters on a white background. **W/OUT:** White outline letters. **B/OUT:** Black outline letters.
011[a]	CHARACTER V-SIZE	Determines the vertical size of characters such as time code output from the COMPOSITE VIDEO OUTPUT 3 (SUPER) connector for superimposed display on the monitor. **×1**: Standard size **×2:** 2 times standard size **×3:** 3 times standard size **×4:** 4 times standard size

a) When setting items 002, 003, 009, and 011, watch the
   monitor screen, and adjust to the required state.

| Item number	Item name	Settings
013	525/625 SYSTEM SELECT **Before using this menu item, consult the person responsible for the installation.**	Specify whether to enable switching between the 525 (NTSC) and 625 (PAL) systems. **OFF**: Do not enable system switching. **ON:** Enable system switching. Setting this item to ON and switching the system enables the unit to operate in the system switched to. The basic and extended menu settings are saved separately for 525 (NTSC) mode and 625 (PAL) mode. **Limitations when using the DNW-A100/A50/A45 in 625 mode** • Betacam and Betacam SP tape cannot be played back. • Composite input cannot be recorded. • When NTSC signals are recorded on the hard disk, the hard disk cannot be used for recording or playback. In this case, HD525 is displayed in the time data display area. In order to use the hard disk again, use the disk file management menu *(see page 7-25)* to delete all files. • Color frame synchronization with external reference video signals cannot be performed. **Limitations when using the DNW-A100P/A50P/A45P in 525 mode** • Betacam and Betacam SP tape cannot be played back. • Composite input cannot be recorded. • When PAL signals are recorded on the hard disk, the hard disk cannot be used for recording or playback. In this case, HD625 is displayed in the time data display area. In order to use the hard disk again, use the disk file management menu *(see page 7-25)* to delete all files. • Color frame synchronization with external reference video signals cannot be performed.
B01	RECALL BANK 1	Set to ON to recall menu settings from menu bank 1.
B02	RECALL BANK 2	Set to ON to recall menu settings from menu bank 2.
B03	RECALL BANK 3	Set to ON to recall menu settings from menu bank 3.
B04	RECALL BANK 4	Set to ON to recall menu settings from menu bank 4.
B11	SAVE BANK 1	Set to ON to save current menu settings to menu bank 1.
B12	SAVE BANK 2	Set to ON to save current menu settings to menu bank 2.
B13	SAVE BANK 3	Set to ON to save current menu settings to menu bank 3.
B14	SAVE BANK 4	Set to ON to save current menu settings to menu bank 4.
B20	RESET SETUP	Set to ON to reset current active settings to factory default values.

7-2-2 Basic Menu Operations

This section describes the basic menu displays and how to change the settings.

For information about how to use item 013, see the section "Switching between 525/625 line systems (menu item 013)" (page 7-6), and for information about how to use items B01 to B14, see the section "Menu bank operations (menu items B01 to B14" (page 7-8).
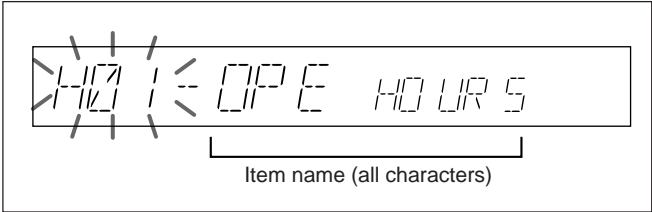
Displaying the menus

Time data display
VAR button
F FWD button
MENU button
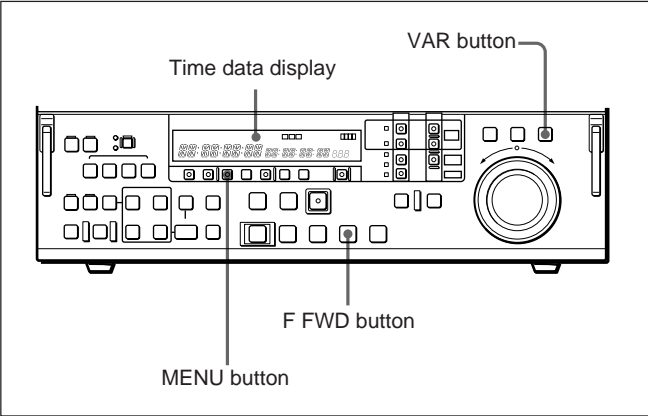
Press the MENU button, turning it on.
The F FWD button and VAR button light, and the setting of the currently selected menu item appears in the time data display.
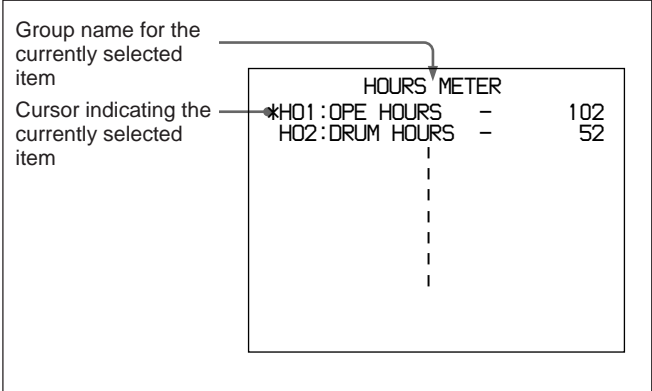

Item number (flashing)
Item name (first three characters)
Setting
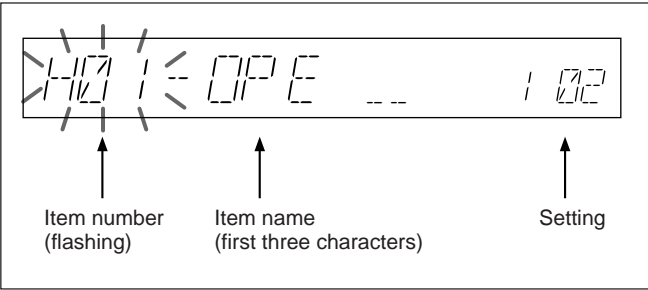
To display the full item name
Hold down the F FWD button.
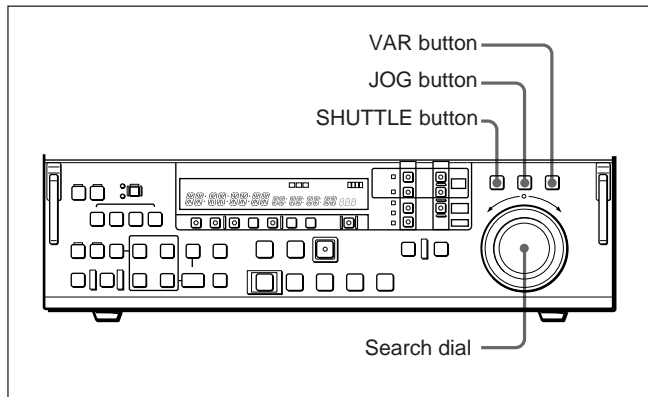

Item name (all characters)

To display the item group name
Items in the menu are arranged in groups, by the 100's digit of the item number. To display the name of the group to which the currently selected item belongs, hold down the VAR button.

Item group name
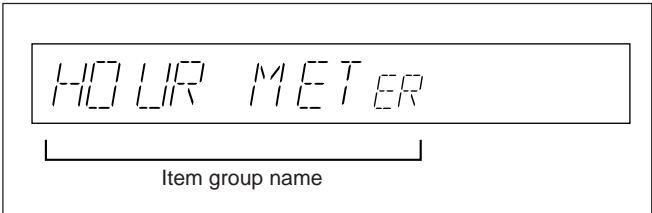
Output from COMPOSITE VIDEO OUTPUT 3 (SUPER) connector
If the CHARACTER switch on the subsidiary control panel is set to ON, then when you display a menu item on the time data display, a full-screen version also appears on a monitor connected to the COMPOSITE VIDEO OUTPUT 3 (SUPER) connector as shown in the following figure.

Group name for the currently selected item
Cursor indicating the currently selected item

```
                HOURS METER
*HO1:OPE HOURS    -      102
 HO2:DRUM HOURS   -       52
```

Changing the currently displayed menu item

VAR button
JOG button
SHUTTLE button
Search dial

Turn the search dial.
Turning the search dial in the forward direction increments the item number, and turning it in the reverse direction decrements the item number.
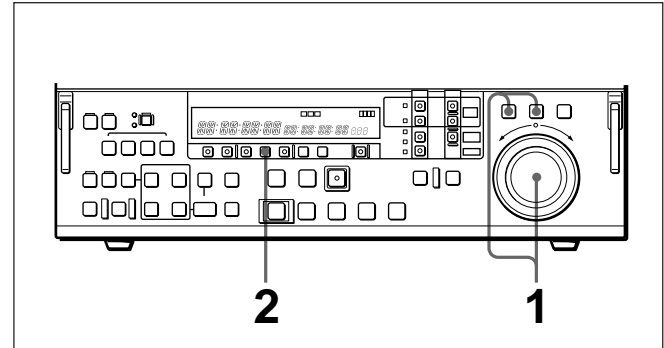If you press the SHUTTLE button or JOG button, turning it on, then turn the search dial, the item number changes at a rate depending on the search dial position (when the SHUTTLE button is lit) or on the search dial rotation rate (when the JOG button is lit).

To skip from one item group to the next
Hold down the VAR button, and turn the search dial.

Changing a menu item setting value

To change the setting value of the currently displayed menu item, use the following procedure.

2   **1**

1   Holding down the SHUTTLE button or JOG button, turn the search dial.

The setting value changes at a rate depending on the search dial position (when the SHUTTLE button is lit) or on the search dial rotation rate (when the JOG button is lit).

Setting value (flashes while changing)
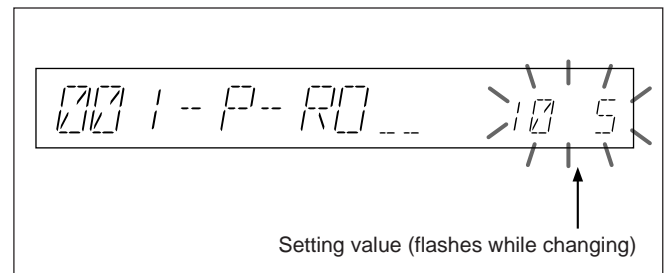
2   When the desired setting value is displayed, press the SET button.

This saves the new setting value, and the menu display disappears from the time data display.
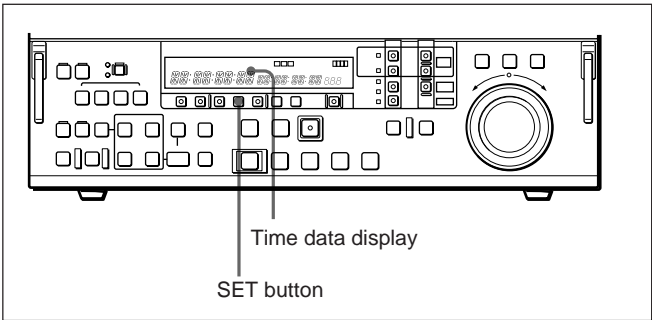
To abandon making a change
Press the MENU button before pressing the SET button.
The menu display disappears from the time data display, without the new setting value being saved.

Chapter 7   Menu System

Resetting the menu settings to their factory default values (menu item B20)

Time data display

SET button

1 Set menu item B20 RESET SETUP to ON.

"PUSH SET BTN" appears in the time data display, and "Push SET button" appears on the monitor screen.

2 Press the SET button.

The current active menu settings *(see page 7-8)* are reset to their factory default settings.

3 Press the SET button again.

The settings are saved and the menu display disappears from the time data display.

Switching between 525/625 line systems (menu item 013)

Using the following procedure, you can set basic menu item 013, 525/625 SYSTEM SELECT, to "ON", and then switch between 525 (NTSC) and 625 (PAL).

Note

Before carrying out this operation, consult the person responsible for the installation.

Limitations when using the DNW-A100/A50/A45 in 625 mode

• Betacam and Betacam SP tape cannot be played back.
• Composite input cannot be recorded.
• When NTSC signals are recorded on the hard disk, the hard disk cannot be used for recording or playback. In this case, HD525 is displayed in the time data display area. In order to use the hard disk again, use the disk file management menu *(see page 7-25)* to delete all files.
• Color frame synchronization with external reference video signals cannot be performed.

Limitations when using the DNW-A100P/A50P/A45P in 525 mode

• Betacam and Betacam SP tape cannot be played back.
• Composite input cannot be recorded.
• When PAL signals are recorded on the hard disk, the hard disk cannot be used for recording or playback. In this case, HD625 is displayed in the time data display area. In order to use the hard disk again, use the disk file management menu *(see page 7-25)* to delete all files.
• Color frame synchronization with external reference video signals cannot be performed.
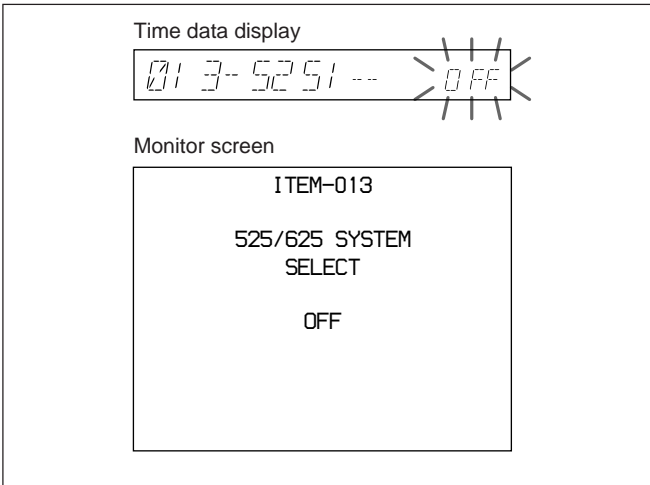
(The following procedure shows by way of example how to switch from a 525 (NTSC) system to a 625 (PAL) system.)
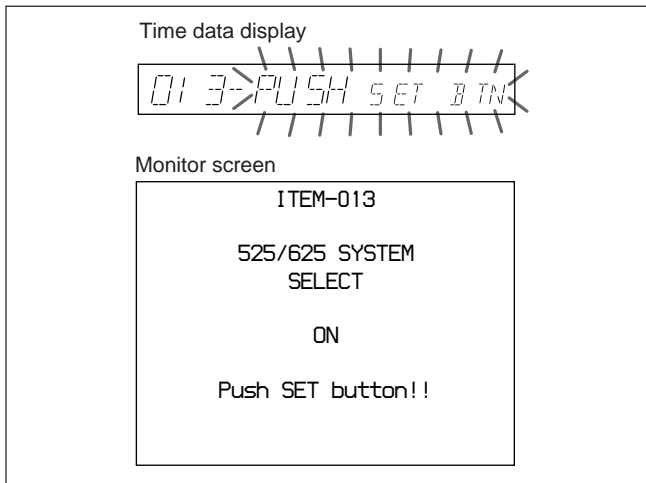
1 Select menu item 013.

The time data display and the monitor screen connected to the COMPOSITE VIDEO OUTPUT 3 (SUPER) connector show the following displays.
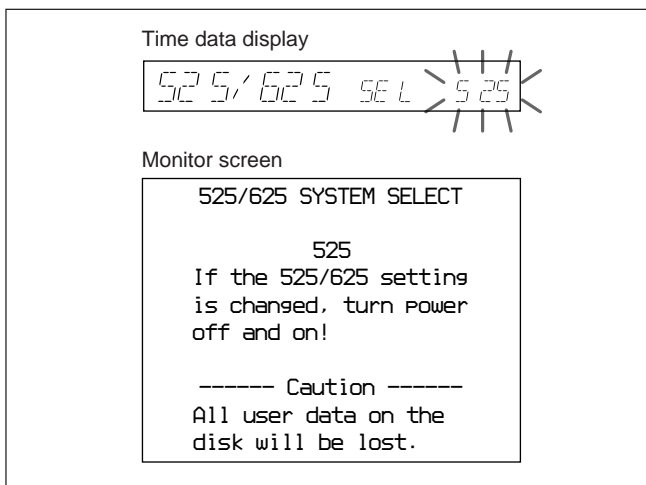
2 Holding down the JOG button, turn the search dial to change the setting from "OFF" to "ON".

The displays change as follows.

Time data display

```
OI 3>PUSH SET BTN
```

Monitor screen

```
        ITEM-013

      525/625 SYSTEM
         SELECT

           ON

     Push SET button!!
```

3 Press the SET button.

The displays change as follows.

Time data display

```
525/625 SEL >525
```

Monitor screen

```
     525/625 SYSTEM SELECT

             525
      If the 525/625 setting
      is changed, turn POWER
      off and on!

      ------ Caution ------
      All user data on the
      disk will be lost.
```
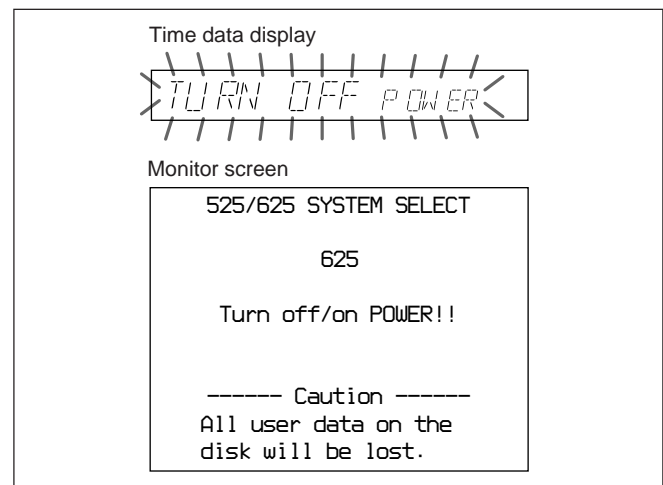
4 Holding down the JOG button, turn the search dial to change the setting from "525" to "625".

The displays change as follows.

Time data display

```
PUSH SET BUTTON
```

Monitor screen

```
     525/625 SYSTEM SELECT

             625

        Push SET button!!


      ------ Caution ------
      All user data on the
      disk will be lost.
```

5 Press the SET button.

The displays change as follows.

Time data display

```
TURN OFF POWER
```

Monitor screen

```
     525/625 SYSTEM SELECT

             625

        Turn off/on POWER!!


      ------ Caution ------
      All user data on the
      disk will be lost.
```

To abandon the 525/625 setting operation
Press the MENU button a required number of times to exit from the menu.

6 Turn the POWER switch off momentarily, then on again.

This switches from a 525 (NTSC) to 625 (PAL) system; the 525 indicator goes off, and the 625 indicator lights.
The menu settings disappear from the time data display, which returns to the normal indications.

7-2 Basic Menu

Menu bank operations (menu items B01 to B14)

This unit allows four different complete sets of menu settings to be saved in what are termed "menu banks" numbered 1 to 4. Saved sets of menu settings can be recalled for use as required.

To jump to menu item B01
You can recall any required menu item by turning the search dial after pressing the MENU button.
If you press the MENU button first, then the CTL/TC/ UB button, you can jump directly to menu item B01 or H01. The recalled menu item toggles between B01 and H01 every time you press the CTL/TC/UB button.

Saving the current active menu settings
Set one of menu items B11 SAVE BANK 1 to B14 SAVE BANK 4 to ON, depending on which of the menu banks you wish to save in, then press the SET button.

Recalling settings from a menu bank
Set one of menu items B01 RECALL BANK 1 to B04 RECALL BANK 4 to ON, depending on which of the menu banks you wish to recall from, then press the SET button.
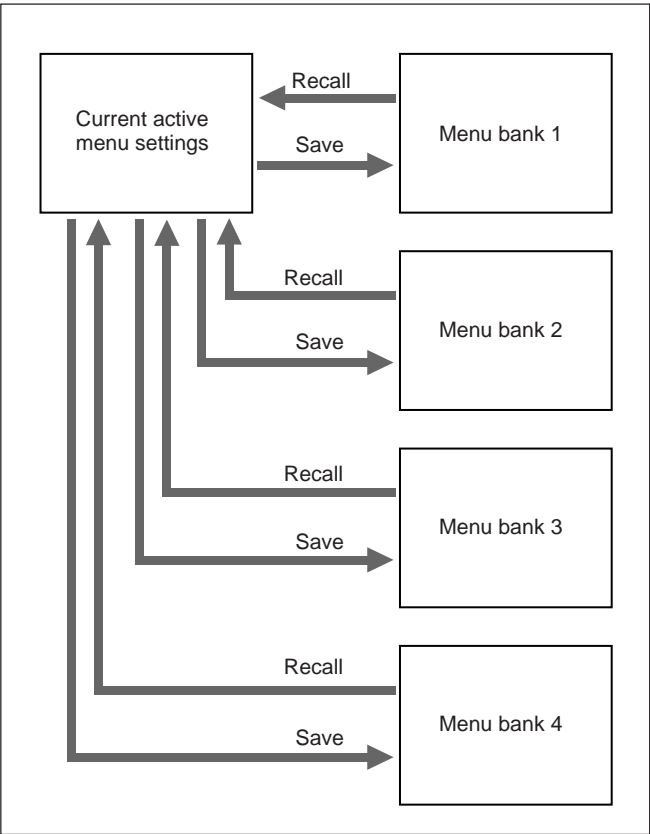
7-3 Extended Menu

7-3-1 Items in the Extended Menu

The extended menu contains the following items.
In the "Settings" column of the table, the factory
default settings are indicated by an enclosing box.

Menu items in the 100s, relating to the control panels

Item number	Item name	Settings
101	SELECTION FOR SEARCH DIAL ENABLE	Select how the unit enters the search mode. **DIAL** : Turning the search dial switches to search mode at all times except during recording/editing. **KEY:** One of the JOG, SHUTTLE, and VAR buttons must be pressed to switch to search mode.
102 (Before Version 2.00)	MAXIMUM TAPE SPEED (Enabled only when the DNW-A100/A50/A45 is in 525 mode or the DNW-A100P/A50P/A45P is in 625 mode.)	Select the maximum tape speed in the search mode when using an analog cassette. ×**35** **(DNW-A100/A50/A45) /** ×**42** **(DNW-A100P/A50P/A45P) :** The maximum speed for rewind and fast forward, and the maximum speed setting of the search dial in shuttle mode is 35 times normal (DNW-A100/A50/A45) or 42 times normal (DNW-A100P/A50P/A45P). ×**35/24 (DNW-A100/A50/A45) /** ×**42/24 (DNW-A100P/A50P/A45P):** The maximum speed for rewind and fast forward is 35 times normal (DNW-A100/A50/A45) or 42 times normal (DNW-A100P/A50P/A45P), and the maximum speed setting of the search dial in shuttle mode is 24 times normal. ×**24:** The maximum speed for rewind and fast forward, and the maximum speed setting of the search dial in shuttle mode is 24 times normal. **Note** When using a digital cassette, regardless of this setting the maximum speed is 50 times normal.
102 (Version 2.00 or later)	MAXIMUM SPEED	Select the fast forward and rewind tape speed during tape playback, and the search mode speed during playback from tape or hard disk. **MAX** : Perform fast forward, rewind, and search mode playback at the maximum speeds. **MX/24:** Perform fast forward and rewind at the maximum speeds, and search mode playback at up to 24 times normal speed. ×**24:** Perform fast forward and rewind at 24 times normal speed, and search mode playback at up to 24 times normal speed. **Maximum fast forward and rewind speeds** • Analog cassette: 35 times (DNW-A100/A50/A45) or 42 times (DNW-A100P/A50P/A45P) normal speed. • Digital cassette: 80 times normal speed **Maximum search mode speeds** • Analog cassette: 35 times (DNW-A100/A50/A45) or 42 times (DNW-A100P/A50P/A45P) normal speed. • Digital cassette: 50 times normal speed • Hard disk: 100 times normal speed
104	AUDIO MUTING TIME	Select the length of time for which audio muting occurs when the unit switches to playback either from stopped or from still playback in the search mode (for Betacam compatible playback only). **OFF** : Set the audio muting time to zero (i.e. no muting). **0.1S ... 1.0S:** Set the audio muting time from 0.1 seconds to 1.0 second, in 0.1-second increments.
105	REFERENCE SYSTEM ALARM	Select whether or not to display a warning when the video/audio reference signal selected by the OUT REF switch on the subsidiary control panel, is not supplied or is out of phase with the input video signal. **OFF:** No warning. **ON** : Flash the STOP button as a warning.

(Continued)

Menu items in the 100s, relating to the control panels (continued)

Item number	Item name	Settings
106	CAPSTAN LOCK	Select the capstan servo lock mode. **SW**: The capstan servo lock mode is determined by the CAPSTAN LOCK switch on the subsidiary control panel. **2F:** The capstan servo locks every two fields regardless of the setting of the CAPSTAN LOCK switch on the subsidiary control panel. **4F:** The capstan servo locks every four fields regardless of the setting of the CAPSTAN LOCK switch on the subsidiary control panel. **8F (For 625 mode only):** The capstan servo locks every eight fields regardless of the setting of the CAPSTAN LOCK switch on the subsidiary control panel.
107	REC INHIBIT LAMP FLASHING	Select whether or not to flash the REC INHIBIT indicator when the REC INHIBIT switch on the subsidiary control panel is set to OFF and the REC inhibit plug on the cassette is pressed in. **OFF**: Do not flash the REC INHIBIT indicator. **ON:** Flash the REC INHIBIT indicator.
108	AUTO EE SELECT	When a digital cassette is inserted and the PB and PB.EE buttons on the lower control panel are set to the PB/EE mode, select the VTR modes in which input video and audio signals are automatically handled in EE mode. When an analog cassette is inserted, regardless of the menu setting the PB mode is always selected. **S/F/R**: In STOP/EJECT/F.FWD/REW modes **STOP:** In STOP/EJECT modes
109	FORCED EE WHEN TAPE UNTHREAD	During tape threading and unthreading, and when no cassette is inserted, select whether the PB and PB.EE buttons on the lower control panel control the output signal PB/EE setting. **ON**: No control by the PB and PB.EE buttons (the signal is always an EE signal). **OFF:** Control by the PB and PB.EE buttons.
118	KEY INHIBIT SWITCH EFFECTIVE AREA Sub-item	Select which switches and buttons can be operated when the KEY INHIBIT switch on the subsidiary control panel is set to ON. The following sub-items control different sets of switches and buttons independently.
	118-1 REMOTE SELECT	Select whether the REMOTE/LOCAL switch in the upper control panel is enabled. **DIS**: Disabled. **ENA:** Enabled.
	118-2 MON./ INPUT SEL	Select whether the AUDIO INPUT / MONITOR SELECT buttons in the upper control panel are enabled. **DIS**: Disabled. **ENA:** Enabled.
	118-3 CONTROL PANEL	Select which switch and button operations can be carried out from the control panel of this unit or an external control panel connected to this unit. **DIS**: All switches and buttons are disabled. **EDIT:** All switches and buttons for editing operations are disabled. **ENA:** All switches and buttons are enabled.
119	VARIABLE SPEED LIMIT IN KEY PANEL CONTROL	Select the playback speed range when carrying out playback in variable mode from the control panel of this unit. **OFF**: –1 to +1 times normal speed. **ON:** 0 to +1 times normal speed.
120	CTL LOCK IN VAR/SHTL	Select whether the tape transport should be phase-locked to the CTL signal during playback in variable or shuttle mode. **OFF**: Not phase-locked. **ON:** Phase-locked at the following speeds: –1, –0.5, 0.5, and 1.0 times normal.
122	AUTO EE WITH ANALOG TAPE	Select whether or not the setting of item 108 also applies to an analog cassette. Item 108 selects the VTR modes in which input video and audio signals are automatically handled in EE mode, when a digital cassette is inserted and the PB and PB.EE buttons on the lower control panel are set to the PB/EE mode. **DIS**: When an analog cassette is inserted, always use PB mode. **ENA:** When an analog cassette is inserted, follow the setting of item 108.

Menu items in the 100s, relating to the control panels (continued)

Item number	Item name	Settings
123	TAPE INDEX SELECT	Select the "UB marks" to which INDEX functions apply. **REC:** Select REC START MARK. **SHOT1:** Select SHOT MARK 1. **SHOT2:** Select SHOT MARK 2. **ALL**: Select REC START MARK, SHOT MARK 1, and SHOT MARK 2. When the tape is cued up to a UB mark, the type of UB mark (REC, SHOT 1, or SHOT 2) is displayed in the time data display area. *The UB marks are recorded by a Betacam SX camcorder. For more information about the UB marks, refer to the camcorder operation manual.*
124 (Version 2.00 or later)	SX TAPE JOG MEMORY PB	Set the jog memory storage method for digital tape jog, shuttle and variable playback, and for standby-on/standby-off status. **AUTO :** In order to store playback signals in jog memory, run the tape automatically according to tape status. **MANU:** Store playback signals in jog memory according to tape playback speed. This unit performs slow and still playback using data stored in memory called jog memory. For example, to display a still picture when switching from standy-off status to standby-on status, playback signals must be stored in jog memory by setting this item to AUTO so that the unit will run the tape automatically. **Note** When this item is set to AUTO, it may not be possible to carry out cue up correctly from editors such as the BE-800. If this occurs, set this item to MANU.

Menu items in the 200s, relating to the remote control interface

Item number	Item name	Settings
201	PARA RUN	Select whether or not to use synchronized operation for two or more VTRs. **DIS**: No synchronized operation. **ENA:** Use synchronized operation. **Note** To use synchronized operation for two or more VTRs, set item 201 to "ENA" on all of the VTRs.

7-3 Extended Menu

Menu items in the 300s, relating to editing operations

Item number	Item name	Settings
301	VAR SPEED RANGE FOR SYNCHRONIZATION	Select the playback speed range when carrying out playback in variable mode from a remote control unit connected to the REMOTE(9P) connector. **−1~+1:** −1 to +1 times normal speed. **~1.5:** −1.5 to +1.5 times normal speed.
302	CAPSTAN RE-LOCKING DIRECTION	In 525 mode When the CAPSTAN LOCK switch on the subsidiary control panel is set to 4FD select whether the capstan servo should lock by accelerating or decelerating. **DECEL :** Lock by decelerating. **ACCEL:** Lock by accelerating.
		In 625 mode When the CAPSTAN LOCK switch on the subsidiary control panel is set to 4FD or 8FD select whether the capstan servo should lock by accelerating or decelerating. **DECEL :** Lock by decelerating. **ACCEL:** Lock by accelerating.
305	SYNC GRADE	When editing in phase-synchronized mode with item 004 set to ON, select the target phase synchronization accuracy. **ACCUR :** ±0 frame accuracy. **ROUGH:** ±1 frame accuracy.
307	AUTO-DELETION FOR INCONSISTENT DATA	Select what happens when an erroneous edit point is set. **MANU :** A warning is given by flashing the DELETE button on the lower control panel. The operator must manually delete the unnecessary edit points or correct the erroneous edit point. **NEG&E:** When inconsistent edit points are set, such as when an OUT point is before an IN point, or an audio OUT point is before an audio IN point, or when too many edit points are specified, the previously set edit point is deleted. **NEG:** When inconsistent edit points are set, such as when an OUT point is before an IN point, or an audio OUT point is before an audio IN point, the previously set edit point is deleted. When too many edit points are specified, the DELETE button on the control panel flashes to give a warning. **Note** Pressing the button corresponding to an edit point to be deleted and the DELETE button simultaneously, deletes the edit point. If an erroneous edit point is set (the DELETE button is flashing), editing is not executed.
308	SELECTION OF STD/ NON-STD FOR COMPOSITE VIDEO IN (When BKDW-505 for DNW-A100/A50/A45 or BKDW-506 for DNW-A100P/A50P/A45P is used) (Enabled only when the DNW-A100/A50/A45 is in 525 mode or the DNW-A100P/A50P/A45P is in 625 mode.)	Select the STD or NON-STD mode in accordance with a composite video input. **AUTO :** Detect automatically whether the input video luminance and chrominance signals are interleaved or not. If they are interleaved, select the STD mode. If they are not interleaved, select the NON-STD mode. **STD:** The STD mode is always used (forced STD mode). **N-STD:** Use this setting when color framing of the input video signal is unstable (forced NON-STD mode).
309	SERVO/AV REFERENCE SEL	Select the servo reference signal. **AUTO1 :** During recording, an analog component/composite or digital input video signal is used as the servo reference signal. During playback, the signal selected by the OUT REF switch on the subsidiary control panel is used as the servo reference signal. If the signal selected by the OUT REF switch on the subsidiary control panel is not connected, an internal reference signal is used. **AUTO2:** When the OUT REF switch is set to REF, and any of the ASSEMBLE/ ALL, VIDEO, and AUDIO CH1 to CH4 buttons is lit, the reference signal for video/audio signal processing is locked to the input video signal. **EXT:** The servo reference signal is forced to be "EXT" (an external reference video input signal is used).

Menu items in the 300s, relating to editing operations (Continued)

Item number	Item name	Settings
310	REC INHIBIT	Select the conditions under which recording is inhibited when the REC INHIBIT switch on the subsidiary control panel is set to ON. **ALL** : All tape recording is inhibited. **CRASH:** Normal tape recording is inhibited. Select this setting when you wish to carry out assemble editing. **Note** When the REC INHIBIT switch is set to ON, the REC INHIBIT indicator on the lower control panel lights. If an operation inhibited by this item is attempted, the REC INHIBIT indicator flashes.
316	CONFIDENCE PB MODE	Select whether or not to carry out CONFI playback while recording on the tape. **OFF** : No CONFI playback. **ON:** CONFI playback.
318	EDIT RETRY	For two-VTR editing, set when this unit is used as the recorder. Selects the operation if the recorder was not synchronized in time. **OFF:** Editing is not carried out, and the unit stops. **ON** : The editing is automatically retried (up to twice).
320	DIGITAL AUDIO PROCESS ON EDIT POINT	Select the treatment of audio at tape or disk edit points. **CUT:** Carry out a cut (possibly resulting in audio discontinuities at the edit point). **FADE** : Fade out and fade in.
321 (Version 2.00 or later)	V FLOW D-D	Set the video signal flow for real-time editing (video and audio levels can be adjusted) when MASTER or PROGRAM has been selected as the player and PROGRAM has been selected as the recorder. **INT** : Record signals from the player to the recorder internally in this unit. **EXT:** Output signals from the internal player of this unit to an external device, and input signals from the external device to the recorder. Selecting EXT makes it possible to re-input signals to this unit after processing by a video effector or other external device. In this case, select the input signals with the VIDEO INPUT SELECT switch on the upper control panel.
322 (Version 2.00 or later)	A FLOW D-D	Set the audio signal flow for real-time editing (video and audio levels can be adjusted) when MASTER or PROGRAM has been selected as the player and PROGRAM has been selected as the recorder. **INT** : Record signals from the player to the recorder internally in this unit. **EXT:** Output signals from the internal player of this unit to an external device, and input signals from the external device to the recorder. Selecting EXT makes it possible to re-input signals to this unit after processing by an external device. In this case, select the input signals with the AUDIO INPUT/ MIXING/MONITOR SELECT switch on the upper control panel.
323 (Version 2.00 or later)	EXT FLOW DL	Set the processing delay of this unit according to the processing delay of an external device. This setting is required when item 321 (V FLOW D-D) is set to EXT to carry out real-time editing by re-inputting video signals via a video effector or other external device. **0 FR** : 0 frame **1 FR:** 1 frame **2 FR:** 2 frames **Note** Differences in the delay between this unit and an external device will cause edit points to be displaced and prevent correct editing.

Menu items in the 400s, relating to preroll

Item number	Item name	Settings
401	FUNCTION MODE AFTER CUE-UP	Select the state that the unit goes into after a cuing-up operation. **STOP** : Stops (the "STOP mode"). **STILL:** Still playback (in search mode). **Note** When controlling this unit from an editor with the standard constants set, select "STOP".
403	AUTOMATIC PREROLL REFERENCE ENTRY	Select whether or not the edit IN point is automatically set by pressing the PREROLL button, when the IN point is not set before starting preroll. **DIS** : IN point is not set automatically. **ENA:** IN point is set automatically.
404	CUEUP BY TC	Select the tape transport mode when cuing up to a time code value. This setting is valid only when the CTL/TC/UB button on the lower control panel is set to TC or UB. **CAP:** During cuing up, the tape transport is in the "pinch ON" state (maximum tape speed 10 times normal). **REEL** : During cuing up, the tape transport is in the "pinch OFF" state. As the tape approaches the cue up point and the tape speed drops, the tape transport switches to the "pinch ON" state. **Note** Select "CAP" when the tape contains discontinuous time code, and the preroll will span a discontinuity. (The tape is prerolled by extrapolating the time code signal from the CTL signal before the discontinuity.)
405	CUEUP BY CTL	Select the tape transport mode when cuing. This setting is valid only when the CTL/TC/UB button on the lower control panel is set to CTL. **CAP:** During cuing up, the tape transport is in the "pinch ON" state (maximum tape speed 10 times normal). **REEL** : During cuing up, the tape transport is in the "pinch OFF" state. As the tape approaches the cue up point and the tape speed drops, the tape transport switches to the "pinch ON" state.[a] To give priority to editing accuracy, select "CAP".

a) When controlled from an editor (BVE-2000/9100 etc.), selecting "REEL" allows high-speed cuing up.

Menu items in the 500s, relating to tape protection

Item number	Item name	Settings
501	STLL TIMER	Select the time delay from the tape transport stopping (either the "STOP mode" or the still playback mode in search mode) until the unit automatically switches to the tape protection mode, in order to protect the video heads and the tape. **0.5S ... `8M` ... 30M:** Set the value in the range 0.5 seconds to 30 minutes.
502	TAPE PROTECTION MODE FROM SEARCH	Select the operation of the protection mode to protect the video heads and tape when in the still playback mode in search mode (jog/shuttle). `STEP`**:** Step forward at 1/30 normal speed every 2 seconds. **STDBY:** Switch to "Standby OFF mode" (the unit not on standby). **T.REL:** Switch to tension release mode (the tape tension slackened).
503	TAPE PROTECTION MODE FROM STOP	Select the operation of the protection mode to protect the video heads and tape when stopped (the "STOP mode"). `STDBY`**:** Switch to "Standby OFF mode" (the unit not on standby). **T.REL:** Switch to tension release mode (the tape tension slackened).
504	DRUM ROTATION IN STANDBY OFF	Select whether the drum rotates in "Standby OFF mode". `OFF`**:** Drum does not rotate. **ON:** Drum rotates.
505	STILL TENSION	Select the tape tension state in the still playback mode. `NORM`**:** Normal tape tension is maintained during still playback mode, ready for playback. **LOOSE:** Reduce the tape tension further from the NORM setting. (Select "LOOSE" when the unit is on standby for a long period of still playback, for example, in a library management system (LMS).) **Note** When LOOSE is selected, playback cannot be guaranteed.

Menu items in the 600s, relating to the time code generator

Item number	Item name	Settings
601	VITC POSITION SEL-1	In 525 mode Select a line to insert the VITC in. **12H ... `16H` ... 20H:** Select any line from 12 to 20. **Note** You can insert the VITC signal in two places. To insert it in two places, set both items 601 and 602.
		In 625 mode Select a line to insert the VITC in. **9H ... `19H` ... 22H:** Select any line from 9 to 22. **Note** You can insert the VITC signal in two places. To insert it in two places, set both items 601 and 602.

(Continued)

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Item number	Item name	Settings
602	VITC POSITION SEL-2	In 525 mode Select a line to insert the VITC in. **12H ... 18H ... 20H:** Select any line from 12 to 20. **Note** You can insert the VITC signal in two places. To insert it in two places, set both items 601 and 602.
		In 625 mode Select a line to insert the VITC in. **9H ... 21H ... 22H:** Select any line from 9 to 22. **Note** You can insert the VITC signal in two places. To insert it in two places, set both items 601 and 602.

603	ID CODE PRESET	Select whether or not to set the ID code.
		OFF : Do not set the ID code.
		ON: Set the ID code.
		To set the ID code:
		① Set this item to ON.
		    The HOLD indicator on the lower control panel lights, and the time data display areas flash.
		② Turn the search dial to select the column, then hold down the SHUTTLE or JOG button while turning the search dial to change the digit value.
		③ When the ID code setting is complete, press the SET button.
		    This saves the ID code setting, and the setting of this item returns to "OFF".

604	ID CODE SW	Select whether or not to record the ID code set using item 603 in the user bits. **OFF :** Record the normal data in the user bits. **ON:** Record the ID code in the user bits.
605	TCG REGEN MODE	Select the signals to be regenerated when the time code generator is in the regeneration mode (i.e., when the REGEN/PRESET switch in the time code setting section is set to REGEN, or the unit is in automatic edit mode). **TC&UB:** Both the time code and user bit signals are regenerated. **TC:** Only the time code signal is regenerated. **UB:** Only the user bit signal is regenerated.
606	TC OUTPUT SIGNAL IN REGEN MODE	Select the signal output from the TIME CODE OUT connector during normal (x1) speed playback in the following three cases: • For tape playback when the INT/EXT switch in the time code setting section is set to INT and the PRESET/REGEN switch is set to REGEN. • For hard disk playback when the PRESET/REGEN switch in the time code setting section is set to REGEN. • For preroll or postroll playback during automatic editing with the tape. **TAPE :** During tape playback, the playback time code signal is output without regeneration (in this case the output video and the time code values output from the TIME CODE OUT connector do not agree). During disk playback, no time code signal is output. **REGEN:** The playback time code (for disk playback, the playback LTC value) is output after regeneration.
607	U-BIT BINARY GROUP FLAG	Select the user bits to be used in the time code generated by the time code generator. **000 :** Character set not specified. **001:** 8-bit characters compliant with ISO 646 and ISO 2022. **010:** Undefined. **011:** Undefined. **100:** Undefined. **101:** SMPTE 262M page/line multiplex system. **110:** Undefined. **111:** Undefined.

Menu items in the 600s, relating to the time code generator (Continued)

Item number	Item name	Settings
608	PHASE CORRECTION	Select whether or not to carry out phase correction control on the LTC generated by the time code generator. **OFF** : No control. **ON:** Carry out control.
609	TCG CF FLAG	Select whether or not the color framing flag is set in the blank bit of the time code data. **OFF** : Color framing flag is not set. **ON:** Color framing flag is set. **AUTO:** Color framing flag is set or not depending upon the color framing phase relationship between the recorded video signal and the time code signal. When AUTO is selected, color framing is controlled as follows according to the operating mode of the time code generator. • In INT PRESET mode (the INT/EXT switch is set to INT, the PRESET/REGEN switch is set to PRESET, and in modes other than the automatic editing mode): the time code signal is generated with color framing locked to the video signal, and the color framing flag is set. • In INT REGEN mode (the INT/EXT switch is set to INT, the PRESET/REGEN switch is set to REGEN, and in the automatic editing mode), and also in EXT mode (the INT/EXT switch is set to EXT): the time code signal is generated with color framing locked to the video signal, and the color framing flag is not set.
610	REGEN CONTROL MODE	In editing performed using the control panel of this unit, select whether or not the time code is automatically regenerated (valid only when the recorder is TAPE). **AS&IN** : In editing with this unit as the recorder, regardless of the setting of the PRESET/REGEN switch, in assemble and insert editing, the time code generator regenerates according to the time code on the tape. **ASSEM:** In editing with this unit as the recorder, regardless of the setting of the PRESET/REGEN switch, in assemble editing only, the time code generator regenerates according to the time code on the tape. **MANU:** Regardless of whether this unit is the recorder or player, the time code generator operates in accordance with the setting of the INT/EXT switch. **FULL:** Regardless of whether local or remote, when any of the ASSEMBLE/ALL, VIDEO, and AUDIO CH1 to CH4 buttons is lit, the time code generator regenerates on the time code played back from the tape.

7-3 Extended Menu

Menu items in the 700s, relating to video control

Item number	Item name		Settings
701	SELECTION OF VIDEO/ SYNC DELAY		An EE video signal is output delayed with respect to the video input signal by the time for video circuit processing. With this item, select whether or not to delay the sync signal attached to the output video signal by an amount corresponding to the delay. **SYNC** : Delay the sync signal by the corresponding amount before attaching it. **VIDEO:** Attach a sync signal with the same timing as the input signal.
703	BLANK LINE SELECT		Switch blanking on or off for individual lines in the vertical blanking interval. The Y/C signal and odd/even fields are blanked simultaneously. **Note** For playback of an analog Betacam cassette (Betacam SP, etc.) regardless of the setting of this item, the chrominance signal is blanked up to line 15.
	Sub-Item		
	0	ALL LINE	**---** : Specify the blanking for each line separately. **BLANK:** Regardless of the setting of other sub-items, blank all lines which can be specified in this menu item. **THROU:** Regardless of the setting of other sub-items, switch off blanking for all lines which can be specified in this menu item.
In 525 mode	12 ... 20	LINE 12 ... LINE 20	Specify blanking for lines 12 to 20. **BLANK**: Carry out blanking. **THROU:** Switch off blanking.
In 625 mode	9 ... 22	LINE 9 ... LINE 22	Specify blanking for lines 9 to 22. **BLANK** : Carry out blanking. **THROU:** Switch off blanking.
	23	LINE 23	Specify blanking for line 23. **HALF** : Carry out half-blanking. **THROU**: Switch off blanking.
704	DECODE Y/C SEP MODE (Enabled only when the DNW-A100/A50/A45 is in 525 mode or the DNW-A100P/A50P/A45P is in 625 mode.)		Select the method of processing the input video signal in the vertical blanking interval, independently for each line.
	Sub-Item		
When BKDW-505 is used for DNW-A100/A50/A45	12 ... 20	LINE 12 ... LINE 20	Make the selection for lines 12 to 20. **BPF:** Carry out Y/C separation. **B&W** : Treat all as luminance signals.
	21 ... 22	LINE 21 ... LINE 22	Make the selection for lines 21 and 22. **BPF:** Carry out Y/C separation. **B&W:** Treat all as luminance signals. **COMB** : Process with an appropriate Y/C separation.
When BKDW-506 is used for DNW-A100P/A50P/A45P	9 ... 22	LINE 9 ... LINE 22	Make the selection for lines 9 to 22. **BPF:** Carry out Y/C separation. **B&W** : Treat all as luminance signals.
705	EDGE SUBCARRIER REDUCER MODE		During recording and playback of a composite signal, in the playback circuit the edge subcarrier reducer (ESR) is automatically switched on or off according to the VTR operation. When recording a "Non-Standard" signal, for example, if the color edges are not as good as with a proper signal, the ESR can be forced on. This item makes this selection. **AUTO** : ESR is switched on and off automatically. **ON:** ESR operation is forced on.

Item number	Item name	Settings
706	VERTICAL BLANKING V SHIFT	When the "Y-add" [a] function is operative, when the playback signal is an odd field and the reference signal is an even field, the playback signal is shifted by 1H (1 line) to suppress the vertical movement of the playback picture. This item selects whether or not to apply a 1H shift to the vertical blanking interval. **ON : Carry out vertical blanking shift.** **OFF:** Do not carry out vertical blanking shift. **Note** If the 1H shift is applied during the vertical blanking interval, the signal recorded in line 21 may intermittently appear in jog or variable playback mode.
707	FORCED VERTICAL INTERPOLATION OFF	The "Y-add" function is normally switched on automatically during jog or variable playback. This item selects whether or not to force the "Y-add" function off. **AUTO : Automatically switch the "Y-add" function on.** **OFF:** Force the "Y-add" function off.
709	CAV LEVEL FORMAT	Select whether the analog component input/output should be D-1 or Betacam. (Selectable only in 525 mode)

709 CAV LEVEL FORMAT table:

Format	Color bars	Y video	V sync	R–Y/B–Y
D-1 CAV	100/0/100/0	700 mV	300 mV	700 mV
Betacam	100/7.5/77/7.5	714 mV	286 mV	700 mV

Item number		Item name	Settings
	Sub-Item		
	0	INPUT CAV LEVEL	Select the analog component input format. **B-CAM : Betacam** **D1:** D-1
	1	OUTPUT CAV LEVEL	Select the analog component output format. **B-CAM : Betacam** **D1:** D-1
710		INTERNAL VIDEO SIGNAL GENERATOR	Select the test signal to be output from the VTR's internal test signal generator. When the selection is other than "OFF", pressing the VIDEO INPUT SELECT switch for at least 3 seconds while it is lit causes all the VIDEO INPUT SELECT indicators to light and the internal test signal generator to operate and output the selected test signal. This signal can also be recorded. **OFF: No test signal is generated. (The VTR operates normally.)** **CB100:** 100% color bar signal **CB75:** 75% color bar signal **CB75R:** 75% color bar signal (reverse) **BOW:** Bowtie signal **PLSBR:** Pulse & bar signal **MLTBS:** Multi-burst signal **HSWP:** H sweep signal **5STEP:** 5-step signal **RAMP:** Ramp signal **SH:** Shallow ramp signal **RED:** Red signal **GRAY:** 50% flat signal **WHITE:** 100% flat signal **BB:** Black burst signal **SDI:** SDI check field signal **NTC7:** NTC 7 test signal (selectable only in 525 mode) **LN330:** Line 330 test signal (selectable only in 625 mode)

a) The "Y-add" function is a circuit operation to interpolate the video signal vertically during jog or variable playback for the purpose of reducing the vertical movement of the playback picture.

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Menu items in the 700s, relating to video control (Continued)

Item number	Item name		Settings
712	VIDEO PROCESS ON CAP LOCK 2FIELD		When the CAPSTAN LOCK switch on the subsidiary control panel or menu item 106 is set to 2FLD for 2-field playback, select whether or not to carry out a "picture shift". **OFF**: No picture shift. **ON:** Carry out picture shift. **Note** When recording a composite input signal, first convert it to a component digital signal using the optional BKDW-505 for DNW-A100/A50/A45 or BKDW-506 for DNW-A100P/A50P/A45P before recording. To eliminate the adverse effect of the residual chrominance subcarrier component in the Y signal that is the result of the Y/C separation, this unit automatically applies a shift to the playback image in the H direction, so that even in 2-field playback a satisfactory image can be obtained.
713	VIDEO SETUP REFERENCE LEVEL (When operating in 525 mode)		Set the video setup amounts to be removed from a recording signal and Betacam playback signal, and to be added to a composite output signal. There are independent settings for a recording signal (referred to below as an input signal), a Betacam signal, and a composite output signal (referred to below as an output signal). **Notes** • Setup removal is carried out only with respect to a Betacam format CAV input signal (menu setting) and NTSC composite input signal (option). It is not carried out with respect to other input signals. • The setup amounts specified in this menu item have no connection with the SETUP (DNW-A100/A50/A45)/ BLACK LEVEL (DNW-A100P/A50P/A45P) knob on the subsidiary control panel.
	Sub-Item		
	0	MASTER LEVEL	When the input signal, Betacam playback signal, and output signal settings are "MSTER" (master), the setup amount specified for this sub-item is removed from the input signal and Betacam playback signal, and is added to the output signal. **0.0% ... 7.5% ... 10.0%:** Setting in this range, in 0.5% increments.
	1	INPUT LEVEL	**MSTER**: Set the input signal to the master setting. **0.0% ... 7.5% ... 10.0%:** Set the setup amount to be removed from the input signal in this range, in 0.5% increments.
	2	INPUT VBLK CONT	**REMOV:** Remove the setup amount in the vertical blanking interval of the input signal. **THROU**: Do not remove the setup amount in the vertical blanking interval of the input signal.
	3	BETACAM PB LEVEL	**MSTER**: Set the Betacam playback signal to the master setting. **0.0% ... 7.5% ... 10.0%:** Set the setup amount to be removed from the Betacam playback signal in this range, in 0.5% increments.
	4	OUTPUT LEVEL	**MSTER**: Set the output signal to the master setting. **0.0% ... 7.5% ... 10.0%:** Set the setup amount to be added to the output signal in this range, in 0.5% increments.
714	VIDEO ADJUST RANGE		Select the variable range of the VIDEO and CHROMA controls when the PROCESS CONTROL switch on the subsidiary control panel is set to LOCAL. **–3~+3**: –3 dB to +3 dB **WIDE:** –∞ to +3 dB

Menu items in the 700s, relating to video control (Continued)
(Items 715 to 721: Settings for controlling the video processing system according to the menu settings.)

Item number	Item name	Settings
715	VIDEO GAIN CONTROL	Adjust the video output level. Default value: **800H**
716	CHROMA GAIN CONTROL	Adjust the chroma output level. Default value: **800H**
717	CHROMA PHASE CONTROL	Adjust the chroma phase. Default value: **80H**
718	SETUP LEVEL	Adjust the setup level (black level). Default value: **110H**
719	SYSTEM PHASE SYNC	Adjust the SYNC control on the subsidiary control panel. Default value: **80H**
720	SYSTEM PHASE SC	Adjust the SC control on the subsidiary control panel. Default value: **0H**
721	Y/C DELAY	For playback from an analog Betacam cassette, adjust the Y/C delay. Default value: **800H**

Note

When you make settings for items 715 to 721, set the PROCESS CONTROL switch on the subsidiary control panel to MENU. When set to MENU, all controls on the subsidiary control panel are disabled.

Item number	Item name		Settings
723	INPUT VIDEO BLANK		Switch blanking on or off for individual lines in the vertical blanking interval of an input video signal. The Y/C signal and odd/even fields are blanked simultaneously.
	Sub-Item		A signal with blanking carried out according to this setting is recorded.
	0	ALL LINE	---: Specify the blanking for each line separately. **BLANK:** Regardless of the setting of other sub-items, blank all lines which can be specified in this menu item. **THROU:** Regardless of the setting of other sub-items, switch off blanking for all lines which can be specified in this menu item.
In 525 mode	12 ... 20	LINE 12 ... LINE 20	Specify blanking for lines 12 to 20. **BLANK:** Carry out blanking. **THROU :** Switch off blanking.
In 625 mode	9	LINE 9	Specify blanking for line 9. **BLANK:** Carry out blanking. **THROU :** Switch off blanking.
	10 ... 21	LINE 10 ... LINE 21	Specify blanking for lines 10 to 21. **BLANK:** Carry out blanking. **THROU :** Switch off blanking.
	22	LINE 22	Specify blanking for line 22. **BLANK:** Carry out blanking. **THROU :** Switch off blanking.

(Continued)

7-3 Extended Menu

Menu items in the 700s, relating to video control (Continued)

Item number	Item name	Settings
726	H BLANKING WIDTH	Select the horizontal blanking width of a video output signal. **NARROW** : Digital blanking (narrow) **WIDE:** Analog blanking (wide) When analog blanking is selected, the horizontal blanking width complies with RS170A, and normally the blanking is widened and the image becomes narrower. It is recommended to select NARROW at the editing stage, then later, for broadcast transmission to select WIDE, to output a signal conforming to the standard.
727	VIDEO EDIT PREVIEW SWITCHER	Set the output phase for the video playback signal when any of the ASSEMBLE/ALL, VIDEO, and AUDIO CH1 to CH4 buttons is lit. **INT** : The video playback signal output phase is the same as the output phase in the EE mode. Use this setting when editing with a single VTR, or when previewing while watching the VTR output signal. **EXT:** The video playback signal output phase is the same as the phase of an input video signal or external reference signal. **Note** Whichever setting is used, the correct editing results will be obtained. When, however, you are using an external switcher to switch the video output signal from this unit for the purposes of preview, select EXT. This will prevent any image shifts at editing IN and OUT points.

Menu items in the 800s, relating to audio control

Item number	Item name	Settings
802	DIGITAL AUDIO MUTE IN SHUTTLE MODE	Set the digital audio muting conditions during shuttle playback. However, the digital audio signal is muted irrespective of this setting when the tape speed exceeds 24 times the normal speed. **OFF** : Not muted. **CUEUP:** Muted during cue-up or preroll operations. **FULL:** Muted in shuttle mode.
805	AUDIO MONITOR OUTPUT MIXING	Select the audio mixing method used for digital audio signals and Betacam playback analog audio signals supplied to the MONITOR OUTPUT connector. **ADD:** Simple addition. **RMS** : Root-mean-square. **AVE:** Simple average.
806	LEVEL METER SCALE	Select the mode in which digital audio levels are displayed. **PEAK0** : Displays the audio level as negative values with the maximum level set to 0 dB. **REF0:** Displays the audio level as positive and negative values with the reference level set to 0 dB. The CUE channel (digital Betacam analog audio) level is always displayed in REF0 mode.
807	AUDIO OUTPUT PHASE	Select the output timing of a digital audio playback signal (SIF and AES/EBU only). The reference position corresponds to a setting of 80H; when the setting is less than 80H, the output timing is advanced, and when it is higher than 80H, the output timing is delayed. (80H, 128 samples = approx. 2.7 ms, and 80H, 1 sample=approx. 20 µs) **0 ... 80 ... FF :** Setting in this range.
808	INTERNAL AUDIO SIGNAL GENERATOR	Select the operation of the internal audio test signal generator. **OFF** : No operation. **SILNC:** Silent signal. **1KHZ:** At 1 kHz, –20 dB FS sine wave is supplied to all audio input channels. **For settings other than OFF:** Press the audio selection function selector switch for at least 3 seconds, lighting both the INPUT indicator and MONITOR indicator, to input a test signal from the internal test signal generator on all channels.

Item number	Item name	Settings
809	AUDIO LEVEL METER DIMMER CONTROL	Set the brightness of the audio level meters. **0̲ ... 7:** Set in this range. 0 is the brightest, and 7 the dimmest.
810	AUDIO EDIT PREVIEW SWITCHER	Set the output phase for the audio playback signal when any of the ASSEMBLE/ALL, AUDIO, and AUDIO CH1 to CH4 buttons is lit. **INT:** The audio playback signal output phase is the same as the output phase in the EE mode. Use this setting when editing with a single VTR, or when previewing while watching the VTR output signal. **EXT:** The audio playback signal output phase is the same as the phase of an input video signal or external reference video signal. **Note** Whichever setting is used, the correct editing results will be obtained. When, however, you are using an external switcher to switch the audio output signal from this unit for the purposes of preview, selecting EXT will prevent any muting or discontinuities in the audio at editing IN and OUT points.
813[a]	AUDIO CH3 INPUT SELECT (Before Version 2.00)	Select the input to digital audio channel 3. **SW:** Record the input selected on the upper control panel. **CH1:** Record the same signal on channel 3 as on channel 1.
814[a]	AUDIO CH4 INPUT SELECT (Before Version 2.00)	Select the input to digital audio channel 4. **SW:** Record the input selected on the upper control panel. **CH2:** Record the same signal on channel 4 as on channel 2.
815	AUDIO SAMPLING RATE CONVERTER (Only when BKNW-105 installed)	Select whether or not the sampling rate converter operates on AES/EBU input in CH1-1 to CH-4. **OFF:** Does not operate **ON:** Operates

a) When using a version 2.00 or later unit, you can turn the MIXING indicator on the upper control panel on and select any channel as the recording channel.

Menu items in the 900s, relating to digital processing

Item number	Item name	Settings
911	NO COMPRESSION LINE	Specify the "NO COMPRESSION" line (1 line in 1 field) for video input other than SDDI input. **OFF:** No specification. **12H ... 21H:** Specify one of lines 12 to 21. **Notes** • The data in the specified line will be recorded and played back without video data rate compression. • Data values 0x00 and 0xFF will be converted to 0x01 and 0xFE for playback. • For the line specified in this item, it is not possible to carry out video adjustment, chroma adjustment, or other output adjustments. • When item 726 is set to WIDE, a number of words at the beginning and end of each line will be subject to horizontal blanking, and will not be played back. • For playback of a composite signal in jog or variable mode, according to the setting of item 705, the data will be subject to ESR (edge subcarrier reducer) processing.

7-3-2 Extended Menu Operations

In the extended menu, you can carry out the same operations as in the basic menu.

For details of basic menu operation, see Section 7-2-2, "Basic Menu Operations" (page 7-4).

Note

To access the extended menu, a setting on the internal SS-63 board is required.

For details, refer to the Maintenance Manual (Part 1).

7-4 Disk File Management Menu

7-4-1 Items in the Disk File Management Menu

The disk file management menu contains the following
items.
In the "Settings" column of the table, the factory
default settings are indicated by an enclosing box.

Item number	Item name	Settings
F1	SELECT RECORD TYPE	For recording and editing using the hard disk, select full edit mode or simple edit mode. **FULL**: Full edit mode. **SIMPLE:** Simple edit mode. **Note** Make this setting before carrying out any file creation. If there are already any recorded files, it is not possible to change this setting.
F2	CONVERT TYPE (S ←→ F)	Set this to ON to convert the type of files recorded on the hard disk (conversion between files recorded in full edit mode and files recorded in simple edit mode). **Note** The conversion from a file recorded in simple edit mode to the full edit mode format takes a total of between 1/2 and 1/3 of the time required to record the original file.
F3	SELECT GOP/FRAME	For a program created in simple edit mode (when F1 is SIMPLE), select the editing accuracy (GOP: ±1 frame; FRAME: ±0 frame). **GOP**: Carry out editing in GOP[a] units. The editing accuracy is ±1 frame. **FRAME:** Carry out editing in frame units. The editing accuracy is ±0 frame.
F4	DELETE PROGRAM	Set this to ON to delete the program from the hard disk (DISK PROGRAM). Files in DISK MASTER are not deleted.
F5	DELETE ALL FILE	Set this to ON to delete the program and all files from the hard disk (DISK PROGRAM and DISK MASTER).

a) GOP: abbreviation of "Group Of Pictures". This is the
   number of frames in the unit for carrying out video data
   compression. For Betacam SX, video data is compressed
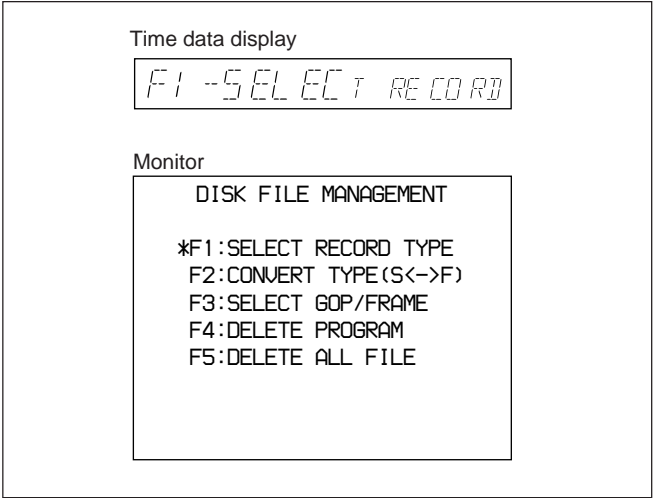   taking two frames as a unit.

7-4-2 Operations in the Disk File Management Menu

To access the disk file management menu and change a setting, use the following procedure.
① Display the disk file management menu.
② Select the item whose setting you wish to change.
③ Change the setting.

Displaying the disk file management menu

While the hard disk is playing back or stopped, press the MENU button, then press the MASTER button. The displays shown below appear in the time data display and on a monitor connected to the COMPOSITE VIDEO OUTPUT 3 (SUPER) connector. (The following illustrations assume that F1 was selected last time the menu was accessed.)

```
        Time data display

     ┌──────────────────────────┐
     │ F1 -SELECt RECORD        │
     └──────────────────────────┘

     Monitor
     ┌──────────────────────────┐
     │     DISK FILE MANAGEMENT │
     │                          │
     │  *F1:SELECT RECORD TYPE  │
     │   F2:CONVERT TYPE(S<->F) │
     │   F3:SELECT GOP/FRAME    │
     │   F4:DELETE PROGRAM      │
     │   F5:DELETE ALL FILE     │
     │                          │
     │                          │
     └──────────────────────────┘
```

Selecting the item whose value you wish to change

Turn the search dial to display the required item in the time data display, then press the SET button.

Switching between full edit mode and simple edit mode (F1)

Using the F1 item of the disk file management menu, you can switch between full edit mode and simple edit mode.

Full edit mode
When you select full edit mode, the FULL EDIT indicator on the lower control panel lights.
In full edit mode, insert editing is possible for the video and audio channels individually. For feed mode playback of the program, the playback speed is restricted to normal speed.

Simple edit mode
When you select simple edit mode, the SIMPLE EDIT indicator on the lower control panel lights.
In simple edit mode, insert editing is not possible for the video and audio channels individually. When item F3 is set to GOP, the maximum playback speed of the program in feed mode playback is twice normal speed. To switch between full edit mode and simple edit mode, use the following procedure.
(Taking switching from simple edit mode to full edit mode as an example)

Note

Make this setting before carrying out any file creation. If there are already any recorded files, it is not possible to switch between full edit mode and simple edit mode.

1 Display the disk file management menu, select item F1, then press the SET button.

The displays shown below appear in the time data display and on a monitor connected to the COMPOSITE VIDEO OUTPUT 3 (SUPER) connector.
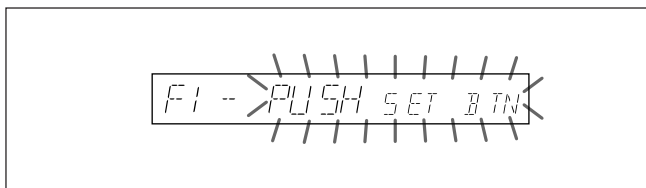
Time data display

```
F1 -SELEC  SIMPLE
```

Monitor

```
DISK FILE MANAGEMENT


      *SIMPLE
```
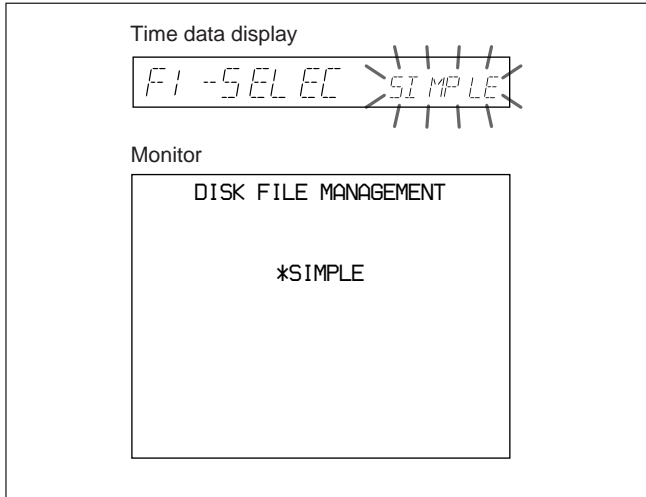
2 Holding down the JOG button, turn the search dial so that the indication in the time data display changes from "SIMPLE" to "FULL".
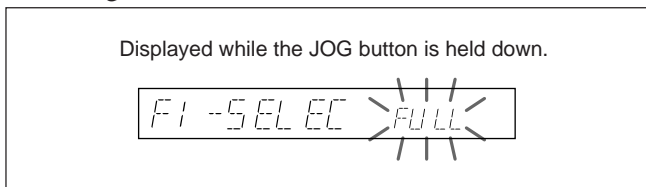
Displayed while the JOG button is held down.

```
F1 -SELEC  FULL
```

3 Release the JOG button to confirm the setting.

The indication in the time data display changes as follows.

```
F1 - PUSH SET BTN
```

If it is not possible to switch between the full edit mode and simple edit mode (e.g. if already recorded program or files are present)
The following message appears in the time data display.

```
F1 - CANNOT SELEC
```
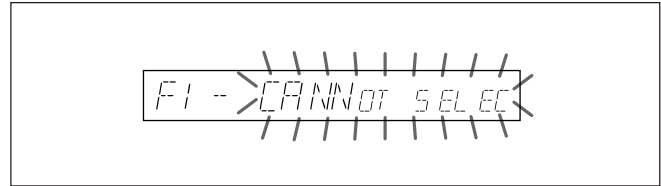
For information about how to switch between full edit mode and simple edit mode when this message appears, see the following item, "Switching between full edit mode and simple edit mode (when already recorded program or files are present)."

4 Press the SET button to carry out the switch between full edit mode and simple edit mode.

The indication in the time data display changes as follows.

```
F1 -SELEC  SIMPLE
```

5 Press the MENU button a number of times, to exit from the disk file management menu.

The indication in the time data display returns to the state before executing step **1**.

Switching between full edit mode and simple edit mode (when already recorded program or files are present)

When already recorded program or files are present, it is not immediately possible to switch between full edit mode and simple edit mode. In step **3** of the procedure in the previous item, "Switching between full edit mode and simple edit mode (F1)", the message "F1-CANNOT SEL" appears in the time data display. In this case, to switch between full edit mode and simple edit mode, carry out either of the following procedures.

To switch from simple edit mode to full edit mode

Carry out either of the following procedures.

• Using the procedure in the next item, "Converting file types (F2)", convert the existing files to full edit files. The setting of item F1 changes to "FULL", and the FULL EDIT indicator in the lower control panel lights.

This preserves the existing program and files.

• Using the procedure in the item, "Deleting the program and all files from the hard disk (DISK PROGRAM and DISK MASTER) (F5)" *(page 7-31)*, delete all existing files, then carry out the procedure in the previous item, "Switching between full edit mode and simple edit mode (F1)."

To switch from full edit mode to simple edit mode

The procedure for switching from full edit mode to simple edit mode depends on whether there are files and a program present, or files only.

When there are files and a program present, carry out either of the following procedures.

• Using the procedure in the item, "Deleting the program from the hard disk (DISK PROGRAM) (F4)" *(page 7-30)*, delete the program, then carry out the procedure in the previous item, "Switching between full edit mode and simple edit mode (F1)." This preserves the existing files.

• Using the procedure in the item, "Deleting the program and all files from the hard disk (DISK PROGRAM and DISK MASTER) (F5)" *(page 7-31)* , delete all existing files, then carry out the procedure in the item, "Switching between full edit mode and simple edit mode (F1)" *(page 7-26)*.

When there are files present but no program, carry out either of the following procedures.

• Using the procedure in the next item, "Converting file types (F2)", convert the existing files to simple edit files.

The setting of item F1 changes to "SIMPLE", and the SIMPLE EDIT indicator in the lower control panel lights.

This preserves the existing program and files.

• Using the procedure in the item, "Deleting the program and all files from the hard disk (DISK PROGRAM and DISK MASTER) (F5)" *(page 7-31)*, delete all existing files, then carry out the procedure in the item, "Switching between full edit mode and simple edit mode (F1)" *(page 7-26)*.
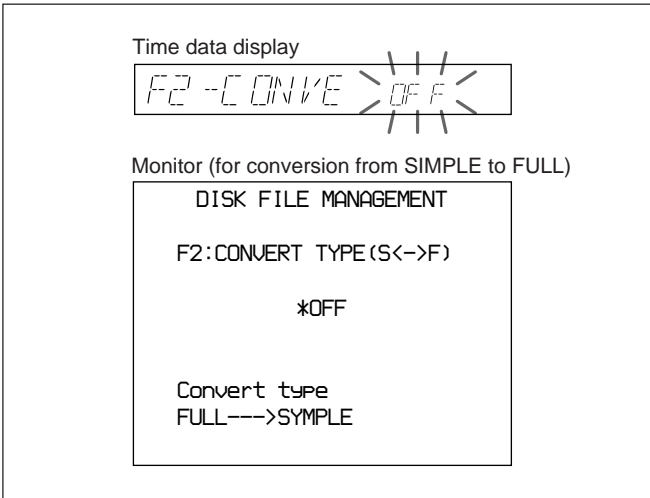
Converting file types (F2)

Use the following procedure to convert the type of files recorded on the hard disk (full edit files or simple edit files).
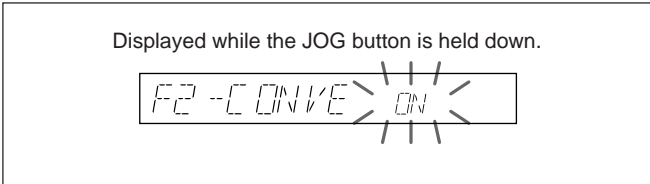
Note that you can check the current file type from the FULL EDIT and SIMPLE EDIT indicators on the lower control panel.

1 Display the disk file management menu, select item F2, then press the SET button.

The displays shown below appear in the time data display and on a monitor connected to the COMPOSITE VIDEO OUTPUT 3 (SUPER) connector.
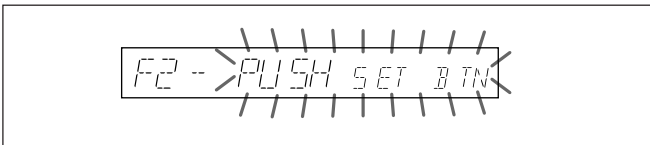
Time data display

```
F2 -CONVE   OFF
```

Monitor (for conversion from SIMPLE to FULL)

```
    DISK FILE MANAGEMENT

 F2:CONVERT TYPE(S<->F)

         *OFF


 Convert type
 FULL--->SYMPLE
```

2 Holding down the JOG button, turn the search dial so that the indication in the time data display changes from "OFF" to "ON".

Displayed while the JOG button is held down.

```
F2 -CONVE   ON
```

3 Release the JOG button to confirm the setting.

The indication in the time data display changes as follows.

```
F2 -  PUSH SET BTN
```

If it is not possible to convert the file type (e.g. when the hard disk is busy immediately after power on)

The following message appears in the time data display.

```
F2 --  DISK BUSY
```

In this case, wait until the DISK BUSY indicator in the lower control panel goes off, then return to step **2**.

4 Press the SET button to carry out the file type conversion.

The indication in the time data display changes as follows.

```
During the file type conversion

F2 --  CONVERTING

When the file type conversion is completed

F2 --  COMPLETE
```

5 Press the MENU button a number of times, to exit from the disk file management menu.

The indication in the time data display returns to the state before executing step **1**.

Selecting the editing accuracy (F3)

For a program created in simple edit mode (when F1 is SIMPLE), use the following procedure to select the editing accuracy (GOP: ±1 frame; FRAME: ±0 frame).

(Taking switching from GOP to FRAME as an example)

1 Display the disk file management menu, select item F3, then press the SET button.

The displays shown below appear in the time data display and on a monitor connected to the COMPOSITE VIDEO OUTPUT 3 (SUPER) connector.

```
Time data display

F3 --SELEC  GOP
```

```
Monitor

    DISK FILE MANAGEMENT

  F3:SELECT GOP/FRAME

         *GOP
```

2 Holding down the JOG button, turn the search dial so that the indication in the time data display changes from "GOP" to "FRAME".

```
Displayed while the JOG button is held down.

F3 --SELEC  FRAME
```

3 Release the JOG button to confirm the setting.

The indication in the time data display changes as follows.

```
F3 --  PUSH SET BTN
```

If it is not possible to switch the editing accuracy (e.g. for a switch from FRAME to GOP, if an already recorded program is present)

The following message appears in the time data display.
(Even if there is an existing program, it is still possible to switch from GOP to FRAME.)
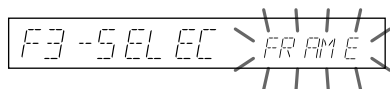
(Continued)

7-4 Disk File Management Menu

```
F3 --> CANNOT SELEC
```

For information about how to switch the editing accuracy from FRAME to GOP when this message appears, see the following item, "When an already recorded program or files are present."

4 Press the SET button to switch the editing accuracy.

The indication in the time data display changes as follows.

```
F3 -- SELEC > FRAME
```

5 Press the MENU button a number of times, to exit from the disk file management menu.

The indication in the time data display returns to the state before executing step **1**.

When an already recorded program or files are present
When it is not possible to switch the editing accuracy from FRAME to GOP because already recorded program or files are present, in step **3** of the procedure above, the message "F3-CANNOT SEL" appears in the time data display. In this case, to switch the editing accuracy, carry out either of the following procedures.
• Using the procedure in the next item, "Deleting the program from the hard disk (DISK PROGRAM) (F4)", delete the program, then carry out the procedure above.
  This preserves the existing files.
• Using the procedure in the item, "Deleting the program and all files from the hard disk (DISK PROGRAM and DISK MASTER) (F5)" *(page 7-31)*, delete all existing files, then carry out the procedure above.

Deleting the program from the hard disk (DISK PROGRAM) (F4)

Use the following procedure to delete all of the program from the hard disk (DISK PROGRAM). (Files in DISK MASTER are not deleted.)

1 Display the disk file management menu, select item F4, then press the SET button.

The displays shown below appear in the time data display and on a monitor connected to the COMPOSITE VIDEO OUTPUT 3 (SUPER) connector.

Time data display
```
F4 -- DELET > OFF
```

Monitor
```
        DISK FILE MANAGEMENT

      F4:DELETE PROGRAM

            *OFF
```
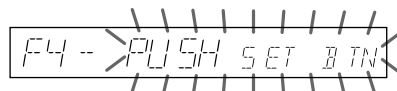
2 Holding down the JOG button, turn the search dial so that the indication in the time data display changes from "OFF" to "ON".

Displayed while the JOG button is held down.
```
F4 -- DELET > ON
```

3 Release the JOG button to confirm the setting.

The indication in the time data display changes as follows.

```
F4 --> PUSH SET BTN
```

If it is not possible to delete the program (e.g. when the hard disk is busy immediately after power on)

The following message appears in the time data display.

```
F4 --   DISK BUSY
```

In this case, wait until the DISK BUSY indicator in the lower control panel goes off, then return to step **2**.

4 Press the SET button to carry out the program deletion.

The indication in the time data display changes as follows.

During the program deletion
```
F4 -- >DELETING<
```

When the program deletion is completed
```
F4 -- >COMPLETE<
```

5 Press the MENU button a number of times, to exit from the disk file management menu.

The indication in the time data display returns to the state before executing step **1**.

Deleting the program and all files from the hard disk (DISK PROGRAM and DISK MASTER) (F5)

Use the following procedure to delete the program and all files from the hard disk (DISK PROGRAM and DISK MASTER).

1 Display the disk file management menu, select item F5, then press the SET button.

The displays shown below appear in the time data display and on a monitor connected to the COMPOSITE VIDEO OUTPUT 3 (SUPER) connector.

Time data display
```
F5 --DELET >OFF<
```

Monitor
```
    DISK FILE MANAGEMENT

  F5:DELETE ALL FILE

        *OFF
```

2 Holding down the JOG button, turn the search dial so that the indication in the time data display changes from "OFF" to "ON".
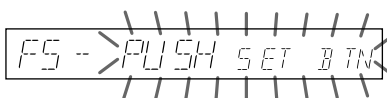
Displayed while the JOG button is held down.
```
F5 --DELET >ON<
```

3 Release the JOG button to confirm the setting.
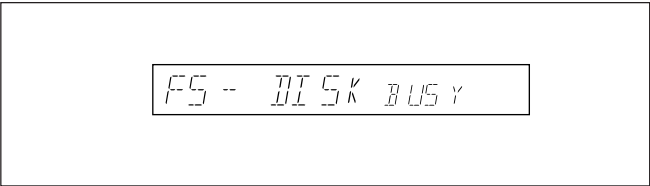
The indication in the time data display changes as follows.

```
F5 -- >PUSH SET BTN<
```

(Continued)

SET

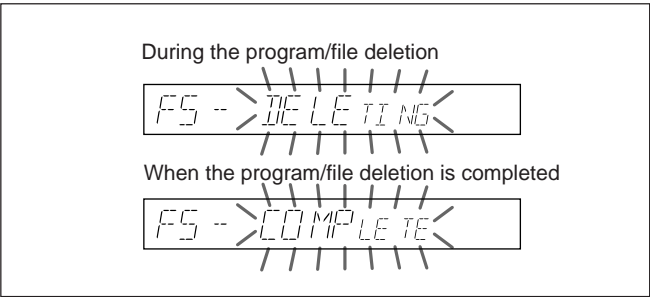**If it is not possible to delete the program and files (e.g. when the hard disk is busy immediately after power on)**
The following message appears in the time data display.

```
FS -- DISK BUSY
```

In this case, wait until the DISK BUSY indicator in the lower control panel goes off, then return to step **2**.

4 Press the SET button to carry out the deletion of program and files.

The indication in the time data display changes as follows.

During the program/file deletion

```
FS -->DELETING<
```

When the program/file deletion is completed

```
FS -->COMPLETE<
```

5 Press the MENU button a number of times, to exit from the disk file management menu.

The indication in the time data display returns to the state before executing step **1**.

8-1 Removing a Cassette When Tape Slack Occurs

If tape slack occurs in the unit, it is necessary to remove the upper lid and sound baffle. This job should always be entrusted to a technician who has undergone service training.

For details, refer to Section 2-12, "How to Take Out the Cassette When the Tape is Slacking," in the Maintenance Manual (Part 1).

8-2 Head Cleaning

To clean the video heads and audio heads, always use the special-purpose Sony BCT-5CLN cleaning cassette.
Follow the instructions with the cleaning cassette carefully, as inappropriate use of the cleaning cassette can damage the heads.

To carry out head cleaning, use the following procedure.

1 Insert the cleaning cassette.

2 Press the EJECT button and PLAY button simultaneously.

Head cleaning starts.

3 After a head cleaning operation which lasts for about 5 seconds, the cleaning cassette is automatically ejected.

Note

When carrying out head cleaning without using the automatic cleaning function described above, be sure to eject the cleaning cassette after use in order not to damage the heads.

8-3 Starting the Hard Disk Drive Under Cold Conditions

This unit includes a hard disk drive. If the hard disk drive is started up under cold conditions (below 5°C/41°F), its reliability may be severely reduced. This unit includes a function to inhibit starting of the hard disk drive when the temperature is below 5°C/41°F. At the same time, a hard disk drive warming up function operates, to warm up the disk drive. During this interval, the DISK BUSY indicator on the lower control panel flashes slowly. In this state, selecting the disk as a device (DISK PROGRAM or DISK MASTER) produces a message "HDD WARM UP" in the time data display. When the hard disk drive temperature reaches 5°C/41°F, the "HDD WARM UP" message disappears, and the hard disk drive can now be started.

Note

If 30 minutes elapse with the hard disk drive warming up function operating, and the hard disk drive still cannot be started, the ambient temperature of the unit may be too low (below –10°C/14°F). Power the unit off, then warm up the surroundings before powering the unit on again.

8-4 Moisture Condensation

When the unit is suddenly moved from a cold to a warm location, or used in a very humid place, moisture from the air can condense on the head-drum. This is called moisture condensation. If the tape is run in this state, it can adhere to the drum. To prevent such a condition from occurring, the unit is provided with a moisture detecting function.

If moisture condenses on the head-drum while the unit is in use, "ERROR-10" is displayed in the time data display.

If moisture condensation occurs, "ERROR-10" appears in the time data display

ALARM indicator
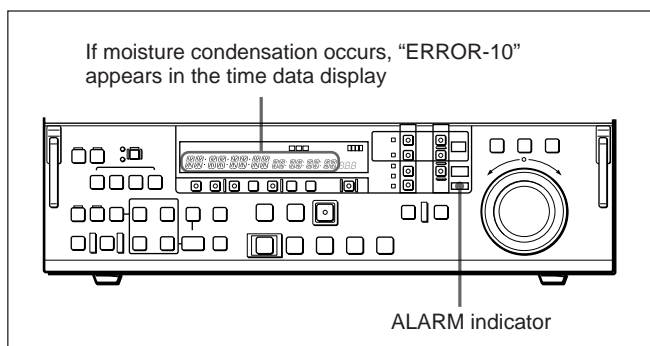
If this happens, the drum and capstan motors stop and the cassette is automatically ejected. Then, the durm starts to rotate again to dry its surface. In this state, the unit is not operable. When the moisture has evaporated, the error message disappears and the ALARM indicator goes off.

If "ERROR-10" appears and the ALARM indicator lights immediately after powering the unit on

Leave the unit powered on and wait until the indicator goes off.

While the indicator is lit, you cannot insert a cassette. When the indicator goes off and the error message disappears, you can use the unit.

If you move the unit from a cold to a warm location

Leave the unit powered off for about 10 minutes, in order to give the unit time to detect moisture condensation.

8-5 Digital Hours Meter

The hours meter can display eight items of information, in corresponding display modes, about the operational history of the unit. Use it as a guide in scheduling periodic maintenance.

Display modes of the hours meter

H01: OPERATION mode
Displays the total number of hours the unit has been powered on in units of 1 hour.

H02: DRUM RUNNING mode
Displays the total number of hours the drum has run with tape threaded in units of 1 hour.

H03: TAPE RUNNING mode
Displays the total number of hours the unit has been in fast forward, rewind, playback, search, recording or editing (except for stop and still) mode in units of 1 hour.

H04: THREADING mode
Displays the total number of times tape has been threaded in the unit.

H12: DRUM RUNNING mode (resettable)
Same as H02 except that the count is resettable. This can be used as a guide in determining when to replace the drum.

H13: TAPE RUNNING mode (resettable)
Same as H03 except that the count is resettable. This can be used as a guide in determining when to replace such components as fixed heads and pinch rollers.

H14: THREADING mode (resettable)
Same as H04 except that the count is resettable. This can be used as a guide in determining when to replace, for example, the threading motor.

H15: AIR FILTER mode (resettable)
Displays the total number of hours the air filter has been in use with the tape deck cooling fan running since the count was last reset. This can be used as a guide in determining when to replace the air filter.

Displaying the hours meter
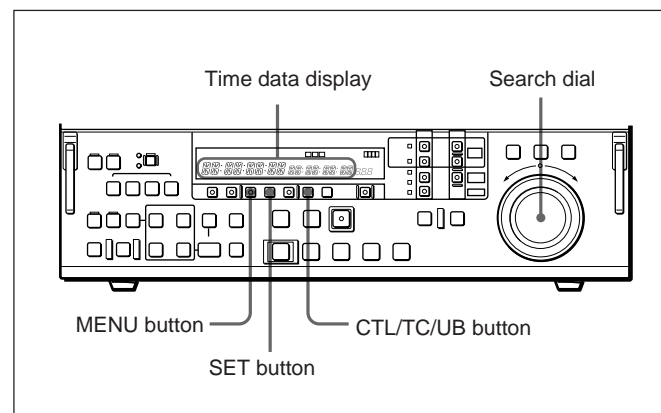
To display the hours meter
Press the MENU button, then turn the search dial to display the required item in the time data display.

To jump to H01
Press the MENU button, then the CTL/TC/UB button. Every time you press the CTL/TC/UB button, menu item H01 or B01 is recalled alternately.

To exit from the hours meter
Press the MENU button or SET button.

Specifications

General

Recording format   Betacam SX
Power requirements
          100 to 240 VAC, 50/60 Hz
Power consumption
          DNW-A100/A100P: 320 VA
          DNW-A50/A50P/A45/A45P:
          300 VA
Peak inrush current
   (1) Power ON, current probe method: 12A (100V),
          20A (240V)
   (2) Hot switching inrush current, measured in
          accordance with European
          standard EN55103-1:
          16A (230V)
Operating temperature
          5°C to 40°C (41°F to 104°F)
Storage temperature
          –20°C to +60°C (–4°F to +140°F)
Humidity   25 to 80%
Mass   38kg (83 lb 12 oz)
Dimensions (w/h/d)
          $427 \times 237 \times 524$ mm
          $(16\,^7/_8 \times 9\,^3/_8 \times 20\,^3/_4$ inches)

Tape transport system

Tape speed   Betacam SX: 59.6 mm/s
          Analog Betacam:
          118.6 mm/s (DNW-A100/A50/
          A45)
          101.5 mm/s (DNW-A100P/A50P/
          A45P)
Digital record/playback time
          184 minutes with BCT-184SXL
Analog Betacam playback time
          90 minutes with BCT-90MLA
Fast forward/ rewind time
          Approx. 3 minutes with BCT-
          184SXL
Search speed
  Shuttle mode   Betacam SX: Still to approx. ±50
          times normal playback speed
          Betacam playback:
          Still to ±35 times normal
          playback speed (DNW-A100/
          A50/A45)
          Still to ±42 times normal
          playback speed (DNW-A100P/
          A50P/A45P)

  Variable mode   –1 to +1 times normal playback
          speed
  Jog mode   Still to ±1 times normal playback
          speed
Servo lock time   0.5 seconds or less (from standby
          on)
Load/unload time   6 seconds or less
Recommended tapes
          Betacam SX cassette (S, L): BCT-
          12SX/22SX/32SX/60SX, BCT-
          64SXL/94SXL/124SXL/184SXL
          Betacam SP cassette (S, L)
          Betacam cassette (S, L) (only for
          playback)

Disk system

Record/playback time
          DNW-A100/A50: 88 minutes
          DNW-A100P/A50P: 92 minutes
          DNW-A45: 41 minutes
          DNW-A45P: 43 minutes
Search speed
  Shuttle mode   Still to approx. ±100 times normal
          playback speed
  Variable mode   –1 to +1 times normal playback
          speed
  Jog mode   Still to ±1 times normal playback
          speed
Rapid record/playback speed
          Maximum 4 times normal record/
          playback speed
Minimum duration
          0.5 seconds

Digital video system

Digital video signal system
Sampling frequency
          Y: 13.5 MHz
          R–Y/B–Y: 6.75 MHz
Quantization   8 bits/sample
Compression   Coefficient recording system
Channel coding   S-I-NRZI PR-IV
Error correction   Reed-Solomon code

Specifications

Analog component output
Bandwidth
Y	DNW-A100/A50/A45: 0 to 4.5 MHz +0.5 dB/ –3.0 dB
	DNW-A100P/A50P/A45P: 0 to 5.5 MHz +0.5 dB/ –3.0 dB
R–Y/ B–Y	0 to 2.0 MHz +0.5 dB/–3.0 dB

S/N ratio 56 dB or more
K factor (2T pulse)
           1% or less

Analog component input to component output
Input A/D quantization
           8 bits/ sample
Bandwidth
Y	DNW-A100/A50/A45: 0 to 4.5 MHz +0.5 dB/ –3.0 dB
	DNW-A100P/A50P/A45P: 0 to 5.5 MHz +0.5 dB/ –3.0 dB
R–Y/ B–Y	0 to 2.0 MHz +0.5 dB/–3.0 dB

S/N ratio 52 dB or more
K factor (2T pulse)
           1% or less
LF non-linearity 3.0% or less

Analog composite input to analog composite output (with optional BKDW-505 for DNW-A100/A50/A45 or BKDW-506 for DNW-A100P/A50P/A45P)
Bandwidth (Y) DNW-A100/A50/A45: 0 to
           4.5 MHz +0.5 dB/ –3.0 dB
           DNW-A100P/A50P/A45P: 0 to
           5.5 MHz +0.5 dB/ –3.0 dB
S/N ratio 53 dB or more
Differential gain 2% or less
Differential phase 2° or less
Y/C delay 15 ns or less
K factor (2T pulse)
           1% or less
Output SCH phase
           Based upon RS-170A/CCIR R.624-3

Digital audio system

Digital audio (CH-1 to CH-4) signal format
Sampling frequency
           48 kHz (synchronized with video)
Quantization 16 bits/ sample
Wow and flutter Below measurable level
Headroom 20 dB (or 18 dB, selectable)
Emphasis T1= 50 μs, T2=15 μs (on/off selectable in recording mode)

Analog output
A/D, D/A quantization
           16 bits/sample
Frequency response
           20 Hz to 20 kHz +0.5 dB/ –1.0 dB (0 dB at 1 kHz)
Dynamic range 90 dB or more (at 1 kHz, emphasis on)
Distortion 0.05% or less (at 1 kHz, emphasis on, reference level (+4 dBm))
Crosstalk –80 dB or less (at 1 kHz, between any two channels)

Appendix

Analog Betacam playback (DNW-A100/A50/A45)

Video

		Metal tape	Oxide tape
Bandwidth	Y	30 Hz to 4.5 MHz +0.5 dB/ –4.0 dB	30 Hz to 4.1 MHz +0.5 dB/ –6.0 dB
	R–Y/ B–Y	30 Hz to 1.5 MHz +0.5 dB/–3.0dB	30 Hz to 1.5 MHz +0.5 dB/–3.0 dB
S/N ratio	Y	51 dB or more	48 dB or more
	R–Y/ B–Y	48 dB or more	45 dB or more
K factor (2T pulse)		2% or less	3% or less
LF non-linearity	Y	3% or less	
	R–Y/ B–Y	4% or less	
Y/C delay		20 ns or less	

Audio (LNG)

	Metal tape	Oxide tape
Frequency response (at 10 dB below reference level[a])	50 Hz to 15 kHz +1.5 dB/ –3.0 dB	50 Hz to 15 kHz +3.0dB
S/N ratio (at 3% distortion level)	72 dB or more	50 dB or more (Dolby NR off)
Distortion (THD at 1kHz reference level[a])	1% or less	2% or less
Wow and flutter	0.1% rms or less	

a) Reference level: +4 dBm

Analog Betacam playback (DNW-A100P/A50P/A45P)

Video

		Metal tape	Oxide tape
Bandwidth	Y	25 Hz to 5.5 MHz +0.5 dB/–4.0 dB	25 Hz to 4.0 MHz +0.5 dB/–6.0 dB
	R–Y/ B–Y	25 Hz to 2.0 MHz +0.5 dB/–3.0dB	25 Hz to 1.5 MHz +0.5 dB/–3.0 dB
S/N ratio	Y	48 dB or more	46 dB or more
	R–Y/ B–Y	48 dB or more	45 dB or more
K factor (2T pulse)		2% or less	3% or less
LF non-linearity	Y	3% or less	
	R–Y/ B–Y	4% or less	
Y/C delay		20 ns or less	

Audio (LNG)

	Metal tape	Oxide tape
Frequency response (at 20 dB below peak level[a])	50 Hz to 15 kHz +1.5 dB/–3.0 dB	50 Hz to 15 kHz ±3.0dB
S/N ratio (at 3% distortion level) (CCIR 468-3 weighted)	68 dB or more	62 dB or more
Distortion (THD at 1kHz reference level[b])	1% or less	2% or less
Wow and flutter (DIN45507 weighted)	0.1% rms or less	

a) Peak level: +8 dB above reference level
b) Reference level: +4 dBm

Specifications

Processor adjustment range

Video level	±3 dB/ –∞ to +3 dB selectable
Chroma level	±3 dB/ –∞ to +3 dB selectable
Setup level (DNW-A100/A50/A45)	
	±30 IRE
Black level (DNW-A100P/A50P/A45P)	
	±210 mV
Y/C delay	±100 ns (in analog Betacam playback)
Chroma phase	30°
System phase	Sync: ±15 μs
	SC: ±200 ns

Input connectors

SDI DIGITAL INPUT
  BNC (1 with active through out)
  Serial digital (270 Mbits/s)
  SMPTE 259M/ CCIR 656-III
SDDI DIGITAL INPUT
  BNC (1) (with optional BKNW-103)
REF. VIDEO INPUT
  BNC (2 in loop through connection)
  Black burst or composite sync
  0.3 Vp-p, 75 Ω, sync negative
COMPONENT VIDEO INPUT
  BNC (3 for 1 set)
  Y: 1.0 Vp-p, Sync negative
  R–Y/B–Y: 0.7 Vp-p, 75 Ω, with 100% color bar for A100P/A50P/A45P and with 100% or 75% color bar selectable for DNW-A100/A50/A45 (with optional BKNW-104)
COMPOSITE VIDEO INPUT
  BNC (2 in loop through connection)
  1.0 Vp-p, 75 Ω, Sync negative (with optional BKDW-505 for DNW-A100/A50/A45 or BKDW-506 for DNW-A100P/A50P/A45P)

AUDIO INPUT CH-1/2/3/4
  XLR 3-pin, female (4)
  LOW OFF: –60 dBu, high impedance, balanced
  HIGH OFF: +4 dBu, high impedance, balanced
  HIGH ON: +4 dBm, 600 Ω termination, balanced
TIME CODE IN XLR 3-pin, female (1)
  0.5 to 18 Vp-p, 10 kΩ, balanced

Output connectors

SDI DIGITAL OUTPUT
  BNC (2)
  serial digital (270 Mbits/ s)
  SMPTE 259 M/CCIR 656-III
SDDI DIGITAL OUTPUT
  BNC (2) (DNW-A100 /A100P only)
COMPONENT VIDEO OUTPUT
  BNC (3 for 1 set)
  Y: 1.0 Vp-p, Sync negative
  R–Y/B–Y: 0.7 Vp-p, 75 Ω, with 100% color bar for DNW-A100P/A50P/A45P and with 100% or 75% color bar selectable for DNW-A100/A50/A45
COMPOSITE VIDEO OUTPUT
  BNC (3 including 1 for character superimpose)
  1 Vp-p, 75 Ω, Sync negative
AUDIO OUTPUT CH-1/2/3/4
  XLR 3-pin, male (4)
  +4 dBm at 600 Ω load, low impedance, balanced
MONITOR OUTPUT (L/R)
  XLR 3-pin, male (2)
  +4 dBm at 60 Ω load, low impedance, balanced
TIME CODE OUT
  XLR 3-pin, male (1)
  2.2 Vp-p, low impedance, balanced
PHONES JM-60 stereo phone jack
  –∞ to –12 dBu at 8 Ω load, unblanced

AUDIO AES/EBU optional connectors (with optional BKNW-105)

Complies with AES-3id-1995.
AES/EBU INPUT BNC (2)
AES/EBU OUTPUT
BNC (2)

Notes

- You cannot use the BKNW-104 Analog Component Input Board and the BKDW-505/506 Analog Composite Decoder Board at the same time.
- You cannot use the AUDIO AES/EBU optional connectors (with optional BKNW-105) and the AUDIO INPUT/OUTPUT CH-1/2/3/4 connectors at the same time.
- When the AUDIO AES/EBU option (BKNW-105) is installed, an XLR/BNC converting connector is required to connect this unit to a device with an XLR connector. (Use Canare BCJ-XJ-TRA, BCJ-XP-TRA or compatible converting connector.)

Remote connectors

REMOTE (9P)
D-sub 9-pin, female
RS232C D-sub 25-pin, female
VIDEO CONTROL
D-sub 15-pin, male (for optional BVR-50/50P)
SCSI 68-pin, female

Accessories supplied

AC power cord (1)
RCC-5G 9-pin remote control cable (1)
PSW 4 × 16 screws for rack mounting (4)
Operation Manual (1)
Maintenance Manual Part 1 (1)

Optional accessories

BKDW-505/506 Analog Composite Decoder Board
BKNW-103 SDDI Input Kit
BKNW-104 Analog Component Input Board
BKNW-105 AES/EBU I/F Kit
BVR-50/50P TBC Remote Controller
RMM-110/111 Rack Mount Adaptor
BCT-5CLN Cleaning Cassette Tape

Design and specifications are subject to change without notice.

Appendix

Sony Corporation
Broadcasting & Professional Systems Company